

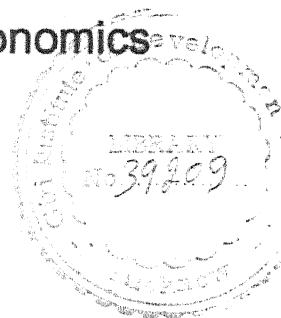
Trade Competitiveness and
Implications of
World Trade Organization on
Agriculture
(A Study of Wheat and Rice Growers of
Uttar Pradesh)

Submitted to
C.S.J.M. University, Kanpur
for Award of Ph.D. Degree in Economics

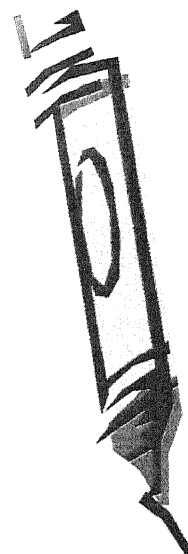
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382.41
ARY
World Trade Organisation
Agricultural dev.



“ Where these high duties and prohibitions
taken away all at once,
cheap foreign goods of the same kind
might be poured
so fast into the home market
as to deprive all at once
many thousands of our people
of their ordinary employments
and means of subsistence.
The distortions which this occasion
might no doubt
be very considerable ”

..... Adam Smith

“An Inquiry in to the Nature and Causes of
The Wealth of Nations” 1776; Book 4, Chapter 2

गिरि विकास अध्ययन संस्थान

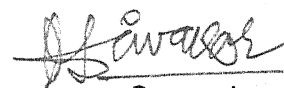
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Certificate

This is to certify that the enclosed thesis entitled "Trade Competitiveness and Implications of World Trade Organization on Agriculture (A Study of Wheat and Rice Growers of Uttar Pradesh)" embodied work of the candidate Mr. Yogesh Bandhu Arya (Registration No. 041441) himself and that he worked under my supervision to complete his research study.

It is further certified that he attended Giri Institute of Development Studies, Lucknow – a recognised centre for Ph. D. of the C.S.J.M. University Kanpur as ICSSR Doctoral Fellow, more than 200 Days (w.e.f. March 1st 2003 to February 28th 2007 and further up to October 2007)

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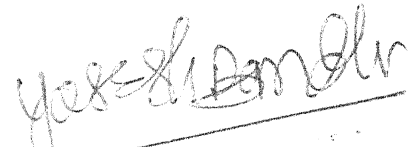
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Declaration

I, Yogesh Bandhu Arya declare that, the thesis entitled "*Trade Competitiveness and Implications of World Trade Organization on Agriculture (A Study of Wheat and Rice Growers of Uttar Pradesh)*" is my own work. This work is either in part or in full, has not been submitted elsewhere for publication or for award of any degree/ diploma.

Date: November 15th, 2007


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Acknowledgement

This work is completed under the supervision of Dr. D. M. Diwakar, Professor of Economics, Giri Institute of Development Studies-Lucknow, to whom I am deeply indebted in real sense. In fact Professor Diwakar's guidance, expert advice, wise counseling and constant academic encouragement inspired me to workout this study without any pressure. Further his continuous attention and sincere concern towards progress of my work lend a hand to timely complete this research. His contribution is too vital to express in few words.

I am thankful to Professor A.K. Singh, Director-GIDS-Lucknow for providing his patron to smoothly accomplish my work. With due regards, I acknowledge sincere cooperation from all the faculty members and office staff, especially to library staff and my friends at GIDS for their kind help and support. I learnt a lot from them.

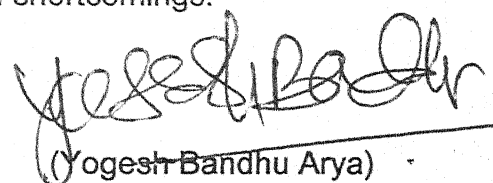
I, can do nothing without rallying round my friends at Raebareli, who always encouraged and supported me by every means. I am nothing exclusive of them; they never lent me to descend.

During this period I have come in touch with so many academicians, institutions and organisations; all of them played their part and influenced me in various capacities towards completing this study. Without mentioning a few, I extend my gratitude to all of them for extending their support to me.

Needless to mention that despite my sincere efforts, if there is any slip-up in the study, that is mine and I am sole responsible for such shortcomings.

Date:

November 15th 2007



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Abbreviations

AMS	Aggregate measurement of Support
AoA	Agreement on Agriculture
APEDA	Agricultural and Processed Food Product Export Development Authority
CACP	Commission on Cost and Agricultural Prices
CAP	Common Agricultural Policy
CIF	Cost, Insurance and Freight
CMIE	Centre for Monitoring Indian Economy
DRC	Domestic Resource Cost
DSB	Dispute Settlement Body
EEC	European Economic Community
EPC	Effective Protection Coefficient
ESC	Effective Subsidy Coefficient
EU	European Union
EXIM	Export and Import
FAO	Food and Agriculture Organisation
FAQ	Fair and Average Quality
FHP	Farm Harvest Prices
FOB	Free on Board
GATS	General Agreement on Trade and Services
GATT	General Agreement on Trade and Tariffs
GCA	Gross Cropped Area
GDP	Gross Domestic Product
GM	Genetically Modified
GNP	Gross National Product
GOI	Government of India

GSDP	Gross State Domestic Product
HRW	Harvest Red Winter
HYV	High Yielding Variety
IBRD	International Bank for Reconstruction and Development
IMF	International Monetary Fund
IPR	Intellectual Property Rights
ITO	International Trade Organisation
LDC	Least Develop Countries
MFN	Most Favoured Nations
MNC	Multi National Corporations
MSP	Minimum Support Prices
MTN	Multilateral Trade Negotiations
NAMA	Non Agricultural Market Access
NPC	Nominal Protection Coefficient
NSDP	Net State Domestic Product
NSSO	National; Sample Survey Organisation
OECD	Organisation for Economic Cooperation and Development
PP	Procurement Prices
PSE	Producer Support Estimates
QR	Quantitative Restrictions
RBI	Reserve Bank of India
SC	Scheduled Cast
SPSM	Sanitary and Phytosanitary Measures
ST	Scheduled Tribes
TNC	Trans National Corporations
TRIPS	Trade Related Intellectual Property Rights
TRPM	Trade Policy Review Mechanism
TRQ	Tariff Rate Quota

UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UP	Uttar Pradesh
URA	Uruguay Round Agreement
WB	World Bank
WP	Wholesale Prices
WTO	World Trade Organisation

Chapter One: Introduction

Introduction

Agriculture is the basics relating to the production, processing, marketing, distribution, utilization and trade of food, feed, fiber, fuel and many other useful natural bio-materials. It is a foundation that supports the edifice of a modern society on a sustainable basis. Strengthening agriculture is critical to meet the challenges of rural poverty, food insecurity, unemployment, raw material to industry and sustainability of natural resources. This suggests to evolve a strategic agricultural development strategy not only to safeguard the interest of the cultivators but also all those forward and backward linkages that are necessary to let them function most efficiently. Therefore agriculture is an important segment from the point of overall economic development.

The importance of agriculture has been recognized since ages cutting across the board of all civilizations and cultures. In the sixth century BC in China, Lao Tze wrote "*There is nothing more important than agriculture in governing people and serving the heaven*".¹ This basic condition of human existing was not lost in early economic theorists. It was the physiocrats who considered agriculture as the only sector which generate surplus. After them, it was Adam Smith who recognized the importance of agriculture for overall development and perceived a significant relationship between productivity improvement in agriculture and the wealth of nations.....

"When by the improvement and cultivation of the land the labour of one family can provide food for two, the labours of half the society become sufficient to provide for the whole. The other half, therefore, or at least the greater part of them, can be employed in providing other things or, in satisfying the other wants and fancies of mankind".²

¹ Lao Tze (2006)

² Smith, (1937)

With the advent of modern society there was growing agreement that agricultural growth is the key to expansion of an entire economy. In support of this thesis John Mellor wrote that.....

"Typically high growth rate are achieved, when agriculture grow rapidly. That is because the resources used for the agriculture growth are only marginally competitive with other sectors, and so fast agricultural growth tend to be additive to growth in other sectors, as well as being a stimulant of growth in the labour surplus non tradable sector³".

Other reasons for the strong effect of agricultural growth on development in the entire economy arise from the structure of income and consumption in rural areas. Beneficial stimulus of agricultural growth takes the form of creating market for non agricultural rural goods and services, diversifying the economic base of rural areas. As economy grows, non economic agricultural activities acquire increasing importance in rural areas. There development however depends in part on agricultural growth. In the past decade empirical evidence has emerged that agricultural growth is not only effective in alleviating rural poverty, but it is more effective than industrial growth in reducing urban poverty⁴. But the importance of agriculture sector has been unable to find its place with the growing pace of industrialisation of the economy.

Although high productivity in farming has potential to release labour for other sectors, this relationship between agriculture and overall economic growth remain distorted into a doctrine of pursuing industrialisation even at the expense of agricultural development, for several decade of the twentieth century resulting into undercutting agricultural possibilities of contributing to overall development. Therefore role of agriculture in approach to the development was seen as that of provider of surplus (labour, domestic savings, raw material to industrial produce etc.) to fuel industrial development. It was not looked to as a source of income growth in its own right. The vision of the limited

³ John Mellor, (2000)

⁴ Roger D. Norton (2004)

role of the agriculture in economic development may be seen as a central part of the "Dual Economic Model"⁵. of John Fai and Gustav Renis. The sector was viewed as playing a supportive role in industrial development, which was considered the most essential aspect of a growth strategy. In fact industry was thought to be so important to a nations' long run economic prosperity that it was common practice to subsidise it at the expense of other sector. This also was the doctrine of first generation of economic development strategy of India after independence.

The linkages between agriculture and nonagricultural sector of an economy are many and varied. They operate through inter sectoral movement of production factors as well as goods and services. However agriculture was placed innermost in the planning process of all developing countries including India. The reason to justify continuous emphasis on agriculture in the development strategy were; the concern against food insecurity, for fuller employment and for availability of the wage goods. But with the advent of time preferences of policy makers changed and agriculture sector was neglected, especially in recent past: the era of economic reforms. However agriculture in India is still important for being the backbone of economic life of masses, especially in terms of employment and as a source of livelihood.

Therefore both governments at central and state level were concerned about the development of agriculture sector and it was a core concern of planning strategy. However agriculture sector remained highly influenced by central planning system and provisions and it has been a state subject because of two basic reasons; firstly, it is the main economic activity of majority of population of almost all of the states and secondly, nature, magnitude and significance of agriculture have been different for different states. Investment in irrigation, research and extension, transport, storage, market and electricity is made by the state governments, though the central government also invests in these areas. So, the development of agriculture largely depends on the ability and

⁵ Fai and Renis, (1964)

willingness of state government to invest in agriculture. But the role of the central government is also crucial not only in terms of resource transfer to the state but also in formulation of macro economic policies that directly or indirectly affect agriculture. It may be significant by notable that certain things are beyond control of state government. For instance, the policies relating to agricultural export import and tariffs that affect domestic agriculture are framed by central government. Therefore the role of both the governments is critical for agricultural development.

The planning framework for agricultural development introduced in 1951, enabled the mobilization of resources and their investment in basic rural infrastructure like irrigation, rural electrification, road and communication, research and extension. In 1965-66 the new strategy for almost stagnant agricultural sector had been adopted to achieve the objective of self sufficiency. The strategy was based on new variety of seeds, intensive use of irrigation, fertilizers, machinery and other inputs and new technologies. This laid the basis for the gradual modernization of agriculture, accelerating dramatically the growth rate of yield and agricultural output. For a long period thereafter agriculture sector was reined by contemporary policies made for other sectors. Towards a lucid shift in development approach and policy directions, India started the process of economic reforms process in 1985 which witnessed speedy pace from 1991. During this reform process many macro economic and sectoral policies have put in place. Basic reform has been introduced particularly in the industrial and trade polices. However, far reaching changes have not been introduced in the agriculture sector. The approach In this regard was, apparently cautious and gradual because reforms in the agriculture sector have important and far reaching implication not only for agricultural growth but also for food security, employment generation, and poverty alleviation. But the structural adjustment programme and other policies acknowledged as economic reforms have affected agriculture sector to a large extent.

However, the direct impact of reform measures on domestic agriculture is evident after the mid 1990s, particularly with the commencement of the WTO in 1995. Since then, Indian agriculture has been subjected to a number of policy changes; such as reduction in import duties on agricultural products, removal of minimum export prices, lifting of quantitative restrictions on agricultural products, entry of direct foreign investment in food processing and marketing up to 100 percent equity, direct involvement of corporate sector in highly capital intensive farming, private sector participation in Research and Development (R&D), technology transfer, extension and marketing, changes in law of tenancy and leasing of land in order to achieve economies of scale, rationalization of stamp duties on agricultural land transactions, and promotion of contract farming. All these policy changes have impacted our farmers and farming process. Some major changes taken place during this period i.e.; crop productivity has declined significantly, growth induced employment generation in agriculture has become almost zero, farm mechanism and technological changes in agriculture increased the cost of cultivation and reduced the employment opportunities in the farm sector, public investment in agriculture, irrigation, rural development and the social sector has significantly declined. Unfortunately these changes related to policies and their implications, both moves in opposite direction and have created a severe crisis for farm sector. The present crisis does not occurred in a day, but are result of gradually shift in preferences of policies. Therefore the present predicament cumulated with time and has become so rampant in a pace that farming community is now realising that they can not survive alone on the basis of agriculture. The broad area of the study is framed around these issues and their effects at domestic and international level.

Uttar Pradesh (U.P.) is nit different in this context. It becomes necessary to comprehend the ground reality at regional level. U.P. is the largest state where majority of the workforce depends on agriculture. Moreover U.P. is one of the Major agriculture producing state. Therefore any attempt towards

understanding agriculture can no ignore U.P. which may indicate the potential policy dimensions to address these issues underlined above. Thus the present study is an attempt to understand and the implications of changing policy environment on agricultural trade especially on farm sectors of U.P. and to analyze the exportable efficiency of agriculture of Uttar Pradesh in an open market scenario. The main objectives of this study are;

- ✦ To analyze the present situation of agricultural in Uttar Pradesh.
- ✦ To understand the implications of economic reforms on different strata of cultivators i.e., land less, marginal, small and big farmer in Uttar Pradesh.
- ✦ To comprehend the implications of WTO's agreement on agriculture of India.
- ✦ To analyse the trade competitiveness of Wheat and Rice economy of Uttar Pradesh with regard to protection or disprotection.
- ✦ To suggests policies for preparing U.P. economy to maximize the gain and to minimize the losses in changing global trade environment.

This study has, therefore, twin prime objectives of preparing U.P. towards maximising advantages of changing environment of global agricultural trade and minimizing disadvantages against the farming community of this State.

1.1 Researchable Issues:

In order to comprehend competitiveness of a for commodity in international market besides respective prices of commodity bin domestic and international reference market, handling charges, transport costs, cost of inputs and various forms of direct and indirect subsidies are important factors. There are studies which worked out different coefficients such as Nominal Protection Coefficients (NPC), Effective Protection Coefficient (EPC) and Effective Subsidy Coefficients (ESC) etc. to understand competitiveness of a commodity with respect to specific prices and markets. Crop wise estimation of these coefficients provides the suggestion of competitiveness of specific crops.

Beside these estimations calculation of Domestic Resource Cost (DRC) suggests the resource allocation for resource efficiency. In this study, DRC for these crops has not calculated for these crops. DRC indicators may suggest as to how Indian can minimize its disadvantages by efficient allocation of resources. It is a researchable issue to calculate the DRC for these crops.

How to prepare Indian agriculture to face the increased competition should form the second major research agenda. Simultaneously, India will also get increased market access for its exportables. To ensure actualization of this access is actualised will need identification of product-market specific needs and policy/strategic initiatives. This should form the third set of research question.

To meet the objectives of the study, it was necessary; first to observe the present state of farmers, especially marginal and small category, their cropping pattern, production and marketing method and food security scenario, and secondly to measure the implication of open market hypothesis on these farmers. For this purpose two pronged method has been adopted.

To comprehend the present state of farmers, cropping pattern, production and marketing method and food security scenario, a survey for primary data has been conducted applying stratified purposive random sampling method in four district of Uttar Pradesh. Gaziabad, Varanasi, Bareilly and Basti have been selected for the survey considering market arrivals, production, quality of wheat and rice (Fair Average Quality) and distribution of land holdings. Out of these four districts, Gaziabad and Varanasi are wheat market and Bareilly and Basti are rice markets located in different region of state.

The economy of Uttar Pradesh is predominantly agrarian and performance of agriculture and allied activities are critical in determining the growth rate of the state. However, the share of this sector in State income has been gradually declining. Since agriculture is the base of social & economic structure of the state and contribution of agriculture sector cannot be judged only on the basis of its contribution to the GSDP. It is the largest employment provider. Primary

sector (inclusive of mining) contributed 36.8% to the state's income in 2003-04 and provided employment to 66% of total workers. Out of the total workers, 82 percent were rural and about 77 percent of the total rural workers were cultivators and agriculture labourers⁶. In terms of absolute numbers the sector was providing direct employment to about 35.57 million persons in the state out of which 33.76 million were in rural areas. This phenomenon of workers distribution was also similar in districts surveyed for the study.

Shrinking employment opportunities in agriculture sector and non-availability of appropriate income generating opportunities in rural areas of state have been compelling rural people for migration in search of means of survival and resulting in increasing casual workers in the urban areas. These observable facts are not good for state's economy as agriculture is the backbone of Uttar Pradesh economy. Predicaments of agriculture in state will not only spoil the income and employment opportunity in Uttar Pradesh, but will also affect the food security of vulnerable section of society. These were the broad concerns of survey to assess the ground realities of farmers regarding cost of cultivation and return from farm, cropping preferences and food security situations.

Socio-economically, the traditional farmers in Uttar Pradesh are resource poor and ranges from the relatively poor peasant to some of large farmers who operate with a high input intensity in agriculture. The outstanding fact on the socio-economic aspect is the smallness of holdings having an average farm-size in most areas being lower than the standard economic size of farms. It has been brought forward by the survey that Small and marginal farmers were engaged in subsistence farming to fulfill their own demands. There were difference regarding objective of cultivation; large farmers perceived it as a business activity, while for small and marginal farmers; it was a way of life and only means for subsistence. This difference in approach is reflected in their cropping patterns. There are farmers in practice of shifting cultivation also. Between these two extremes, various intensities of cultivation are practiced.

⁶ Census of India, (2001)

Crop production, therefore, presents an enormous diversity owing to their family need, circumstances in which they are operating, status of debt, etc. The most important element of farming is the production of grains and the dominant food-chain is grain-man. All these factors have led to the present cropping patterns, which are getting more and more intensive both in respect of the number of crops grown per year and in respect of the intensity of inputs utilized in the production of these crops.

It has been observed that the divergence of preferences in two groups was closely associated to resources available to them. Small and marginal farmers preferred; first to ensure food demand of family than strive for other crops, while large farmers clearly preferred to cultivate the commercial crops for better income.

To study the input-output relation, distribution of cost of cultivation is observed. However it was a complex exercise, but efforts were made to get some inferences. To encapsulate cost on labour (paid and imputed) and credit (institutional and non institutional) were the main head of expenses for small and marginal farmers. In contrast to them large farmers were used to carry out only supervision work as farmer and owner of the cultivated land. They were exceedingly dependant on hired labour and modern inputs; therefore they bear relatively higher cost of cultivation for same crops.

Interaction with small and marginal farmers revealed that they had a very little marketable surplus at their disposal, while larger farmers had comparatively higher volume of marketable and marketed surplus. Marketed surplus by small and marginal category of farmers were sold out either in distress to meet-out their emergencies and demand for other goods or at pre-determined conditions as decided by money lenders and local traders. Most of them sold this surplus in local market within four to eight weeks of harvest. The marketable surplus was insignificant in case of share cropper and marginal farmers.

It also revealed from survey data that the need of cash to pay their liabilities of small and marginal farmers compels them to sell their produce as early as

possible. Small and marginal farmers were generally poor in resources, so they can not store their produce for a long time. It also forced them to sell early. While on the other hand large farmers perform cultivation largely by their own capital so they were in position to hold their produce for better prices. Usually farmers of all categories prefer to sell their produce directly to traders because it provides them instant payment, especially to marginal and small farmers, who were compelled to sell to repay their liabilities and dues.

Moreover one of the most important factors behind this phenomenon was that small and marginal farmers had modest quantity as marketable surplus and they did not have proper transportation facility. According to them, carrying their small surplus to market was also not cost effective; therefore they were destined to sell at local market on lower prices.

Food security essentially refers to the access and the capacity of a person to get sufficient food, and it will depend on such factors as purchasing power, foodgrain production and distribution. The ability to absorb shocks to such a system from drought, floods, civil strife, etc., is also relevant. At the household level, food security may define as access to food, which is adequate in terms of quality, quantity, safety and cultural acceptability, for all household members. The determining factors of household food security for rural households are considered here in survey was access to food by self production and by other means. It has been brought forward by survey data that only one forth small and marginal farmer's households were self sufficient for their food requirements. Situation of sharecroppers was even worst.

The remarkable fact which came out from survey is that almost one forth small and marginal farmer's food demand was unmet. A large number of farmers of this category were dependant on labouring and debt and borrowed for their food. In case of large farmers most of them were self sufficient through their own production and possessed major part of produce therefore they might not affect from uncertainties and fluctuations of market. Including some of these facts survey findings have been discussed in detail in chapter five.

The survey data brought some important fact about state of different category of farmers of U.P.'s agriculture. It reveals that condition of small and marginal farmers in Uttar Pradesh are very miserable. They are underprivileged; both by natural compensation and government policies. They are at forefront of all adversaries of globalised economic regime. The agricultural workforce has been severely marginalised during this period. The cost of cultivation has increased manifold due to increase in prices of diesel, fertilizers, power, seeds, and other farm inputs. The supply induced extension services encouraged the farmers to apply more quantities of the purchased inputs that enhance the credit requirement and hence indebtiness increased among them. Technological fatigue, decline in public investment, large gap in actual and potential yields, stagnation in new cultivated area, marginalisation of holdings, land degradation and depletion of water resources, lack of risk mitigation mechanism, widening gap between per worker GSDP in agriculture and non-agriculture are some of the major concern of agriculture in the post reform regime. Above all, the key concern is the livelihood security of majority of agricultural labourers and small and marginal farmers of state. Hence biggest challenge before the farm sector is how to sustain the livelihood of resource poor marginal and small farmers and how to generate productive job for farm sector. However a number of policies have been introduced affecting directly or indirectly to agriculture, but not a single policy instruments has been able to invigorate the real problem of this sector substantially.

At the international front, opening up of market for imports and exports were the core agenda of liberalisation policies. Therefore along with other sectors measures have been taken to opening up the agriculture sector for open market. There were changes in patterns of government spending and financial measures which necessarily also affected the conditions of cultivation. It was presumed that freeing agricultural markets and liberalizing external trade in agricultural commodities would provide price incentives leading to enhanced investment and output, while broader trade liberalization would shift inter-

sectoral terms of trade in favour of agriculture. Formation of WTO and its agreement on agriculture was a significant move in this direction, which has profound bearings on economies and agriculture sector, especially on developing economies like India.

Since formation of the WTO and its agreement on agriculture insist for freeing of this sector. Therefore to analyze the strength/weakness of state farmers in open market scenario, trade competitiveness of wheat and rice (the predominant agriculture produce of state, especially by small and marginal cultivators) has been measured.

Trade competitiveness is a dynamic phenomenon, which would vary depending upon the changes in international and domestic prices consequent upon demand and supply of commodities and market condition. Opening-up of international agricultural trade increases international competition. In open market, the producers of price effective commodity lead competition subject to direct and indirect support/subsidies. Volatility in international prices arising out of inter year fluctuations has serious implication for India's export competitiveness of agricultural commodities specially for Uttar Pradesh where domestic factors like backward infrastructure, technology, public investment and agricultural research and development activities are yet to improve and produce effective result. Therefore packages of initiatives may have effective role to address the issues.

Effective incentives provided to producers play a major role to determine the trade competitiveness in international market. Government provided these incentives either by subsidizing the export or imposing taxes on imports. An export subsidy raises the domestic price of an exportable commodity similarly import taxes raise the domestic price of importable goods, but both export subsidy and import taxes make domestic goods competitive in international market. The implementation period for the AoA of WTO coincided with the reform process which has been under way since 1991 in response to the macroeconomic crisis. To address this crisis, key reforms were initiated, by way

of ending the old industrial licensing regime, more liberal policies towards foreign direct investment, significant reduction in tariffs on agricultural and industrial goods, currency devaluation and reduction in subsidies provided mostly directly or indirectly to primary sector. Emphasis was on deregulation of control and liberalization of economy. These reforms measures have lucid direct/indirect implications for agriculture. In the case of domestic market, withdrawal of the restrictions on movement of agricultural commodities is one of the major changes that have been brought about during the present reform process. The licensing requirements and stocking limits for the wholesale and retail trade that were a part of the Essential Commodities Act (1955) have been removed. The system of Selective Credit Controls, which was used to regulate institutional credit to traders in commodities since 1943, has also been abandoned. Government allowed Future markets trading of foodgrains, which were banned since 1942 under various statutory orders and since 1955 under the Forward Contract (Regulation) Act⁷.

These reforms have brought about some significant changes in agricultural trade and competitiveness of Indian agricultural commodities. The competitiveness, which is largely dependant on incentives to farmers, are also affected by tariff and non-tariff policies further affecting imports and exports, and by other domestic policies which affect the prices they are paid for their outputs and the cost of their inputs. Most importantly, India's competitiveness is moving towards opposite direction because of very steep rise in cost of production due to increasing input prices, which in turn resulted in high domestic cost and prices. These declines and loss of competitiveness is observed through different incentive indicators and measures of

⁷ In the budget for financial year 2007-08, finance minister has banned future trading of 16 agricultural commodities, most of which are grains. But this announcement is made to check the rising inflation, which causes a political downside in assembly elections to ruling parties in government. It is not a long term policy perspective.

competitiveness i.e. Nominal Protection Coefficient (NPC), Effective Protection Coefficient (EPC) and Effective Subsidy Coefficient (ESC), which have been calculated on different variant of prices⁸ as a part of this study in chapter seven. This stud is focused to analyse the dynamics of these coefficients over time during last one decade in reference. This reflects the trends of competitiveness of agricultural commodities. Result of protection coefficients shows that Wheat and Rice, both commodities were competitive for Uttar Pradesh on different variants of prices till early nineties. As the value of NPC, EPC and ESC of wheat under importable hypothesis were generally less than one from year 1990-91 to 1996-97. However, competitiveness was higher in order to $NPC > EPC > ESC$. Under exportable hypothesis wheat was competitive for some years, but in less extent in comparison to importable hypothesis. In case of rice, it was moderately competitive in domestic (importable hypothesis) and international (exportable hypothesis) markets as the value of NPC, EPC and ESC was below one from 1986-87 to 1998-99. However the competitiveness was higher in domestic market than in international competitive market for both commodities. These competitive advantages have vanished up after 1996-97; when once WTO became functional and government aggravated policy directions towards compliance with WTO's Agreement on Agriculture, i.e. reduction of subsidies on inputs, removal of quantitative restrictions, reduction in tariffs etc. Further with the advent of time both of these commodities became non-competitive and the extent of competitive disadvantage increases year by year.

Competitiveness of these agricultural commodities depends on variety of factors. Prices are dominant of those aspects but trades are also being governed by different set of factors in new international economic regime. The evolution of WTO has brought some unconventional issues on the front of

⁸ Incentive indicators have been calculated on Farm Harvest Prices, Minimum Support Prices and Whole sell Prices.

debate. Apart from comparative advantage subsidies and tariffs are the two other most important factors, which are directing the international trade; especially agricultural trade, which are much higher in developed countries. Result of incentive indicators and changing position of competitiveness has been discussed in detail in chapter six.

Keeping in view the challenges to state agriculture, steps for immediate consideration and appropriate action are seriously needed. A set of recommendations, to save the farmers and their livelihood which needs to do with strategies at domestic level and demands at international level that India need to pursue in its interest at WTO negotiations have been made. In chapter eight these recommendations relate to two broad areas i.e. those related to minimising/ mitigating the adverse impact as they call for immediate action, and those help in converting challenges into opportunities and maximising the opportunities, especially the newer ones.

The state has to give far greater attention on defending her gains while capitalising on the opportunities provided by WTO. Apart from this basic substratum, the very nature of the implications of provisions of AoA and WTO to the farm economy of the state is different (in some cases, contrasting) from the rest of the states in the country, resulting in divergence (even conflicting) in interest with that of the rest of the country⁹ because of the specific and unique characteristics and features of the state's farm economy i.e. being predominantly based on foodgrain crops, flexibility in the cropping pattern to adjust with market conditions is limited and high proportion of subsistence farming results in low marketable surplus. Over the period cultivation is extended to agronomically less suitable crops¹⁰ and less suitable areas partly due to irrational price regimes and partly inappropriate policies prompted by

⁹ In the limited sense of adverse impact on the livelihood security of the dependant population.

¹⁰ State Agriculture Diversification Programme is such an example, for which many farmers in Bundelkhand region gives their lives by committing suiciding.

state¹¹. This needs correction with substantial investment of longer duration for increasing production and productivity. This approach needs to be reviewed and rendered producer-friendly, which requires greater attention; equally in economic planning and plan allocations. A few suggestions have been thrown up to address these issues in last chapter.

The present study is an endeavor to explore these issues in detail. Given the limitation it would be ideal to pretend that this study may provide a systematic analysis or a comprehensive discussion of the problem. This study should therefore, be read as a preliminary attempt to explore the issues. Keeping these issues in view, this study is structured as follows:

After this first chapter as the introduction, second chapter is on the review of the related literature to explore the debate on the concern and for survey of issues arising due to opening of Indian agriculture sector to totally dependent on market economy. This chapter is followed by methodological arrangements as to what were the bases for primary data collection and how the incentive indicators have measured which has been discussed in chapter three. Chapter four dealt with the agriculture profile of the Uttar Pradesh and its present situation. The discussion is further extended to chapter five regarding the implications of the WTO on state economy. Chapter six deals at length with trade competitiveness and incentive indicators for wheat and rice for Uttar Pradesh. Next chapter tries to arrive on conclusion that emerges from the analysis and to suggest some submissions to correct the present distress of farmers and recoup the agriculture economy of Uttar Pradesh.



¹¹ These are often for increasing production to further the state's interest rather than the benefit of the farming community.

Chapter Two: Review of Literature

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Review of Literature

Trading in society is dates back to barter exchange system but mercantilism has more pronounced trading rules and State protection to acquire gold in balance. It was Adam Smith who propounded theory of absolute advantage for trading between the parties because of the advantage of natural endowment. He was the first person to see the benefit stemming from greater competition and to argue for policies that promote greater competition. Later theory of comparative advantage was developed by David Ricardo, who argued that trade can take place between the partners even if they do not have absolute advantage but they have comparative advantage or comparative less disadvantages. Trade he contented, dependent on comparative advantage, or relative efficiency, rater than absolute advantage. Trough specialization each country may gain from foreign trade. The focus was primarily on supply side. This theory provides the justification virtually every economist uses to support free trade. J.S. Mill introduced the concept of reciprocal demand between the countries. Mill explained that most of the gain from trade would go to that country with the lower demand and the greater elasticity of demand.

Samulson has important contribution in international trade theory. He examines the economic consequences of free trade and protectionism. He sowed that even if it is hard for people to migrate, and even if it is hard to capital to move around the world in search of highest rate of return, free trade will make the reward going to factor of production in different countries more equal. This theory has come to be known as the "factor price equalization theorem" has quite important policy implications for an increasingly global economy. Hacher and Ohlin introduced modern theory of international trade. These theories elaborate the different basis for International Trade. J.S. Mills and Tousing's

Theories of Term of Trade and Gustav Cessele's purchasing power parity theory also explain the basis and rational for trade between two countries.

2.1 Role of Agriculture in Economic Development:

The zests of these theories were to find the key to excel the growth and economic development of a country trough international trade, obviously manufactured and other industrial goods had a dominating role. But a number of economists believe that only agriculture has the potential to bring an economy to advance and developed stage from underdeveloped /developing condition. In analyzing the role of agriculture in the process of economic development, first of all let us consider the notion economic growth itself. The process of economic development embodies; (a) the growth of per capita income and (b) a distinct structural change in the output and employment pattern of the economy whereby the proportion of share contributed by agriculture decreases where as the proportion share of contributed in total national income by industry goes up. Thus economic development is a complex problem. It is the result of the growth of the all the sectors of the economy. The main goal of the economic development is to raise the level of economic activity and thereby to ensure a higher standard of living. It involves a move efficient utilization of resources and an increase in productivity by increasing the output of food and labor force required for industrial development, by expanding the market for industrial goods, by increasing it's output for higher export goods enabling the country to import so essential capital goods, and by transferring a part of it's surplus towards the development of industrial sector.

If we look at the importance of agriculture in historical perspective, it seems that the role of agriculture in economic development had first been stressed by the Physiocrates in the 18th century. Franquice Queney (1751) was the leader of Physiocrates who believed agriculture to be the only source of surplus over and above the cost of production¹². Quesnay made several important assumptions

¹² Queney (1751)

while to arriving such conclusion. The first assumption was that the generation of economic surplus was confined to agriculture only. The second assumption was that the size of surplus was determined by the technique of farming or the capital intensity of agriculture. From the advent of Physiocrats the excessive importance to agriculture in overall economic development of an economy has been given by most of economist of every school in variable degrees.

The 'Wealth of Nations' specifically mentions the importance of agriculture; Ricardo (1950) in his three-sector model of economic growth clearly recognized the crucial importance of agriculture, as it was to act as the limit to growth potential. Ricardo argued that the real wage could not fall below the limits by the cost of worker's subsistence. In absence of technological change in agriculture coupled with ever increasing population pressure on land, the phase of diminishing return is bound to emerge soon leading to fall in profit, thus causing the emergence of the stationary state. In the physiocratic as well as in classical model, the manner of utilization of net surplus obtained from the agricultural sector determines the rate and extent of economic development, which can be achieved in a country.

On the basis of his international comparison Kuznets (1961) finds a negative correlation between income level and agricultural sector and a positive correlation between the farmer and the manufacturing sector. Agriculture accounted for about 63% of the domestic product in Japan in 1978-82 but its share declined to 20% by 1983-87. Kuznets point out that the negative correlation between the percentage share of the agricultural sector in the labor and its relative level of product per worker suggest that the countries with the lower per capita income and a large share of their labor force in the agriculture sector may have an over supply of labor relative to capital and hence a over product per worker in the agriculture sector than the national average. It has been further emphasized that the secular decline in the share of agricultural sector is associated with the fact that certain agricultural activities have been replaced by the industrial sector.

However to see the growth process in term of structural transformation is full of confusion. According to some economists, the structural transformation is just a consequence of economic development. The neo classical economist have also emphasized the importance development of agriculture though as a concurrent necessity giving equal importance of industrial development which in tern sustain the agricultural development .The neo classical model as given by Jorgenson (1961) arrives at the conclusion that a growing agricultural surplus is both a necessary and sufficient condition for overall economic growth of the industrial sector and suggest that agricultural development must take place concurrently with industrial development .

Agriculture is by for the largest sector of the economy in the most of the underdeveloped countries including India. Not only it contributes to employment opportunities to the extent of about 67% of the population; but also contributes about 27% of the national income. Thus, development of agriculture is of vital importance in any scheme of economic development .The proper development of agriculture will have tremendous impact on the development of industrial sector and the overall economic development of the economy. History revealed that most of the industrially advance countries of today had to pass trough a process of intense agricultural development .The USA, Canada and Japan all had to make an all-out effort to develop there agriculture. Gunnar Mirdal (1968) writes in his book 'Asian Drama' that "historically few countries have managed to industrialize without first becoming self sufficient with respect to agricultural products or at least a concurrent agricultural revolution"¹³.

Professor John W. Millar has rightly remarked "the need for food and extremely low level of efficiency in agriculture production demand that most of the labor force and land resources in low income countries be engaged in agriculture. In early stage of development 60 to 80 percent of population engaged in agriculture sector". In such economies agricultural sector employs a great deal of labor force and it makes a significant contribution to national income. The

¹³ Gunnar Mirdal (1968)

contribution of agriculture to economic development can be judged on the basis of what constitute as sector in the dualistic structure of the economy and how it limits the process of growth in the other sectors of the economy.

The role of agriculture in development can be similarly discussed on the basis of how it helps the development of an underdeveloped economy from the stagnant to a progressive stage. However there is Sharpe difference of opinion about the priority accorded to agriculture development in developing countries as a precondition for economic development. Hirshman and Singer, following Karl Marx argue that "economic development can be achieved through the establishment of industries without necessarily stressing revolution in the field of agriculture in the early stage.

Hirshman (1969) has emphasized that the need for industrialization .In his view agriculture was inferior to industry on account of the fact that subsistence agriculture of underdeveloped countries fails to set up new activities trough linkage effect. Prof. Singer (1950) also advocates industrialization. He remarks, "If we apply the theory of opportunity cost in relation to investment in food product and raw materials to be exported to industrial countries, it will be clear to us that they are less profitable in comparison to other investment". Therefore the prices if developing countries would have to pay for industrial product would be consistently rising; whereas the prices of agricultural products would be comparatively less and thus putting the developing country at a loss that is why a revolution in the industrial sector will produce skilled, energetic growth-added people and trough *"them a spark will be kindled which will ignite the rest of the population"*. This type of approach was adopted in Soviet Union and other socialist countries.

Some economists like W.F. Gwen, R. Nurkse, P.N. Rosenstein Rodan, T.A. Scitovsky and Arthur W. Lewis suggest a balanced growth approach giving equal opportunity to both the farm and non-form sector for healthy economic progress. The philosophy behind this approach is that both agriculture and industry should be developed with the rising intensity with industry supplying

the basic need in the form of input to agriculture and agriculture supplying back its surplus at low prices for the expansion of the industrial sector. In Anselay's view a balanced industrial and agricultural development is essential in order to minimize waste of productivities recourses that results when one sector of the economy acts for an unnecessarily long time as the effective limiting factors (bottle-neck) on the growth of the other sectors. This type of approach has been successfully implemented by the U.S. as a goal of its economic policy, and has registered sufficient improvement in per capita income in every sector of the economy. Based on the experiences of U.S., Nurkse suggests that developing countries should follow the same path.

A third group of economist like T.W. Shultz, W. W. Rostow and Simon Kuznets (1961) argue that transformation of agriculture is a precondition for the development of the industrial sector as well as for the overall development of the economy. In the view of these economists when agricultural productivity is rising fast enough, the income of farmers will go up which in turn leads to greater saving and thus higher capital formation, so essential factor, for the development of industrial sector.

Historical experience shows that industrial take-off in England was made possibly by the agricultural surplus of the countries concerned, preceding this period. If we take a more modern view at this point, the case of Japanese economic development is more pertinent because agricultural surplus ensured the country a rapid rate of capital formation. Agriculture contributes to economic growth in many ways. Simon Kuznets (1961) analyzed three type of contribution from agriculture to overall economic growth. They are product, market and factor contribution. Product contribution consists of an increase in the gross national output of an economy. The GNP is larger because the agricultural sector had added to a large volume of farm products, on account of economic development. There is a substantial increase in the demand for agricultural products and if the food supply does not keep pace with the growth of demand, the economic growth would be seriously impeded. Agriculture

makes a market contribution to economic growth through the medium of trade with other countries. To quote Simon Kuznets, "Agriculture makes a market contribution to economic growth by (A) purchasing some production items from other sector from home or abroad, (B) selling some of its products not only for purchase listed under (A) but also to purchase consumer goods from other sectors at home or abroad, or to dispose of the product in any way other than consumption within the sector¹⁴". In all these ways, agriculture makes it possible for other sector in the economy to emerge and grow and for international flow to development; just as these other sector and the international flows make it feasible for the agricultural sector to operate more efficiently as a producing unit and use its product more effectively as a consumer unit. Thus we find that this market contribution of agriculture is very important in the early stage of growth but it declines as the growth proceeds swiftly. Lastly agriculture makes factor contribution to economic growth when there is transfer of resources from agriculture to other sector of economy. In short to quote Simon Kuznets again, "if agriculture itself grows, it makes a product contribution; if it trades with others, it renders a market contribution, if it transfers resources being productive factors; it makes a factor contribution¹⁵".

According to Mackie (1964) "through work of specialization, division of labour and improved use of resources, agricultural production is increased, thereby enabling agriculture to (a) support an increase in population, (b) to stimulate and (c) to provide a source of capital for industrial development and governmental functions in the transition period, (d) to earn much needed foreign exchange for capital development and (e) make available the labour supply necessary for the growth and development of industrial sector so essential for the take-off. Besides this agriculture will rescue the nation during time of depression, "agriculture is the nation's best shock absorber in times of depression when economic conditions force it to provide consumers goods at

¹⁴ Kuznets (1963)

¹⁵ *ibid*

less than cost and causes it to give a temporary haven and source of employment to many thousands of people obliged to leave cities owing to lack of remunerative employment there for them under depressed condition".

Prof. Simon Kuznets conclusion are quite explicit on this count," it is a precondition of industrializations a worldwide phenomenon that productivity of labour increases sufficiently to feed, at higher per capita level a larger proportion of labour force than could be fed before. And as our estimate has shown in most of the developed countries, product per worker in agriculture sector increased more than the product per worker in rest of the economy combined. At the danger of stressing the obvious, one may claim that an agricultural revolution –a marked rise in productivity per worker in agriculture is a precondition of industrial revolution for many sizeable regions in the world."

W.W. Rostow (1962), though in favor of priority to agriculture, is against full concentration of agriculture. Any sector according to him," can play the role of "take-off" if advance science and technology are successfully applied with improved organization, which constitute the generating factors or strategic factors of economic development. But he also observed "a good part of working capital for modernized industry must come from rapid increases in output achieved by higher productivity in agriculture.

C.N.Vakil and P.R.Bramhanand warn against the concentration of industry only. They observed that determined persistence in expansion of the fixed capital to the neglect of the expansion of wage goods (food grains) will lead to the economy to a ridiculous situation in which there would tend to be unemployment of labour as well as equipment with no possible escape out of it."

For W.A.Lewis also, developed agriculture is of vital importance in any plan for development. He writes, "if agriculture stagnates the capitalist sector cannot grow, capitalist profit remain a small part of national income and saving and investment are comparatively small."

Thus there is a great deal of controversy among the economist concerning the relative role of agriculture and industry in a developing economy, it can be pointed out that on the basis of empirical evidences the strength and the pace of advancement of the industrial sector of any country, depends largely on the strength of it's agricultural base .The United Kingdom, United State Japan Germany and so many other countries have relied heavily on the imported agricultural raw material for their economic development . However a close look on western industrial development would clearly reveal the fact that the process of rapid industrialization which has led them to the present advanced state, could only start after and not before, a strong base of agricultural surplus had been laid. Any country trying to reverse this historical fact and proceed ahead with the plan of rapid industrialization at the cost of agriculture would find itself in a very precarious condition due to shortage of agricultural product. This is well illustrated by the experience of India also in recent years. One cannot ignore the fact that China was, and still is, essentially an agricultural country. Agriculture is the broad base of China. Today agriculture in China is undergoing a transformation into 'mass-producing agriculture in which all trades develop side by side, with a high level of commodity exchange'. In India on the other hand foodgrain production has had a greater rate of increase, while cash crop has been lagging behind. Unlike the Indian leadership, the China has been very forceful in the advocacy of self-sufficiency in food production. In this connection the Chinese leaders pay due attentions as the firs pre-requisite towards self-reliance. There is no doubt that increased industrial productivity helps agricultural productivity at least in two ways -(a) firstly it make available modern required inputs, and (b) secondly by transferring surplus population into the industrial sector it helps agriculture to develop.

Altogether, therefore there is a close interdependence in between the growth of the agriculture and industry, without one having a necessary priority in the time sequence .At one and the same time industries supply the raw material and equipments which increase productivity in agriculture, and lead to an increase

in the demand for food and the agricultural raw material industrial workers needs food and industries need raw material, together these two requirements provide the market which is the ultimate stimulus for better agriculture . Recent experiences in a number of countries have demonstrated that lagging agriculture may jeopardize industrialization and the growth of the economy as a whole.

2.2 World Trade Organization and Agreement on Agriculture (AoA):

Emergence of modern international institutions, like, UNCTAD, GATT, OECD and many others has brought new dimensions for multilateral trade. World Trade Organizations is another significant development in international trade in order to provide level playing field to trading partners. However, establishment of World Trade Organization and various agreement associated with it generated a long debate and dispute on its likely impact on different countries. Academicians, policy makers and politicians are divided and differ in their opinion. There are a large number of studies in favor and against of WTO. They are broadly focused on growth acceleration, equity aimed at providing level playing field, stability of market prices and reducing poverty.

One of the most important issues of the GATT/WTO agreement has been the inclusion of agricultural trade in to its provision. Which has been resulted as the "Agreement on Agriculture" (AoA) in Marakesh in April 1994. This agreement has serious implications, not only for export earning but also for people's employment and income? It is not that the inclusion if agricultural trade in the WTO framework itself is being objected to, but the whole gamut of issues like subsidies, intellectual property rights, investments, and new trade barriers like environment and labor standards become controversial as soon as Agreement on Agriculture became functional.

Cleaver (2003) made the observation that world trade system and reducing barriers to trade could accelerate medium term growth and reduce global poverty expanding trade could well increase annual Gross Domestic Product

(GDP) growth by an additional 0.5 per cent over the long run and by year 2015 lift an addition 300 million people out of poverty. It is expected that the trade liberalization impact resulting from the WTO agreement on agriculture should be to expand market access and to reduce trade, consumption and production distortions. The ultimate effect should be an increase in world import demand for agricultural product and higher and more stable world market prices than otherwise would be case; He suggests that potential gain exist from the strengthening of a 'rule based' global trading system. Developing countries are the weaker players in the present system; and thus, would benefit the most when dominant trading countries play by a common and more liberal set of rules.

Edwards (1993) believes that theoretically trade liberalization and domestic market deregulation would lead to efficient allocation of resources given the comparative advantage each nation benefits from trade.

Ingo (2003) explain that it was clearly evident during the Uruguay Round Agreement (URA) that by and large the developing countries were on the margin of the negotiations on the relative basis, the outcome of the Uruguay Round would have a greater impact on developing countries than on industrialized countries.

Bela Balasa (1984) explains that in the year fallowing the second world war the developing countries reduces their tariffs in the framework of successive round of the trade negotiations on an item by item basis .The negotiations involved a compromise between the principles of reciprocity and of non discrimination. With the developing countries offering few tariff concessions the developed countries exchanged such concessions on product of interest to them. The developing countries never benefited from the tariff reductions that were made under most favored nation's clause.

The opinions of the economist about the expected impact of WTO and liberalization are not the same. Chakravarti (1991) views that the Uruguay Round of world trade negotiations are likely to reshape world economic

structure for decade to come. He explained that how industrialized countries attempted to extend their control of world trade and production through the inclusion of new areas into GATT framework. Further he warns that if they succeed, their transnational corporation will gain unprecedented right to set up base in the third world. Uruguay round roll back the third world gain in Economic Sovereignty since Independence and usher in a new era of Economic Colonialism, where economic power is more concentrated in Trans National Corporations (TNCs).

Sreekantaradhya (2003) stressed that developed country's bias has been the major problem with regard to all WTO issues. Developed countries have obviously better bargaining capacity and they have always been striving to ensure that all the decisions are favorable to them. Unless the developing countries get united on all major issues the problem of asymmetry between the developed and developing countries cannot be solved.

Aravi (2003) explains that it is well known that the WTO led trading system has failed to deliver the promised expansion in market access for export from developing and less developed countries (LDCs). The developing world has been pursued to liberalize trade, investment and financial flows. On the contrary, in order to ensure that the LDCs get a fair share of the growth in international trade, the moot question to be answered is, whether the agreement are fair and conducive to the development LDCs above all a serious question arises namely, whether the LDCs have necessary capacity and resources to implement the agreement within the time limit prescribed. Free and fair trade is supposed to be fundamental guiding principle behind the multilateral trade practices to be pursued under the GATT/WTO framework and presumed to lead to an increase in global welfare. It is well known that, in the absence of a regulatory mechanism for multilateral negotiations, a nationalistic behavior of trade policies adopted by all the trading partners tend to result in a war like situation in imposing tariffs, providing subsidies, indulging in dumping activities, retaliating by countervailing duties and so on. As it not enough, a

many countries further tend to restrict the free flow of trade by means of various "non tariff" and even "non trade barriers".

Vaidynathan A. (2000) argued that history replete with the stance, when developed countries bluntly violated the principle, as and when there general and sectoral interest gets adversely affected. Also when developing countries emerged as competitor in some of the product the develop countries did not hesitate to abandon the principle of free and non-discriminatory trade.

From the very beginning of the WTO's predecessor, the General Agreement on Tariffs and Trade (GATT), agriculture has been a center and contentious issue. From the founding meeting in Havana in 1947 to the Uruguay Round and recently the talks at Hong Kong, food and agricultural issues have repeatedly disrupted the entire trade negotiation process. WTO has become operational in early 1995 replacing the GATT.WTO act as a permanent watch dog on the international trade and enjoys the status similar to that of UNIDO, wherein each member country will have single voting right; unlike weight voting as in the case of World Bank and IMF.WTO has independent mechanism for implementation of GATT text.

Over the last decade, India has emerged as one of world's fastest growing significant economies, resulting largely from the adoption of the process of liberalization, begun in July 1991.The contribution of agriculture and allied activities to India's economic growth in recent years has been no les significant than that of industry and services. India is today world third largest producer of foodgrain. The WTO's Agreement on Agriculture has large bearing on Indian agriculture and farming community which is as large as 70 % of national population and accredited 27 % of national income.

According to Purcell (2001) Uruguay round agreement will hopefully bring an end to the agricultural protection as well as anti-agricultural discrimination. The frequent use of quantitative restriction will be given up which further improve the world agriculture trade.

Gulati and Kelly (2001) realized that Indian agriculture would in future, operate in an open external trade framework, India will have to build domestic capacity and environment not only to cope with the new framework but also benefit from it. If the trade is liberalized the domestic prices of rice, wheat and cotton are likely to rise and that of oilseeds and pulses decline. This may result in large increase in export of rice, wheat, sugar and cotton and substantial imports of pulses and oilseeds.

Singh (1995) believes that new agriculture policies will create a much more favorable environment for the growth of agriculture than in the past. While Bhalla (1995) mentions that globalization of agriculture offers opportunities for deriving large benefits through massive increase in agricultural exports specifically export of high value labour intensive allied agricultural products.

Parikh and Narayan (1995) in his study find that Trade liberalization improves long run GDP growth when both agricultural and non-agricultural sector are liberalized. In this case domestic prices would equal to world prices. One of the major benefits of liberalization would be high GDP level primarily due to cheaper investment goods. Trade liberalization would normally help exports of all agricultural goods except coarse grain and other food products particularly amongst food items. Net export of wheat rice and dairy products would increase considerably by 11.25 and 20.5 metric tons respectively.

Bale and Sogh (1995) remarked that trade liberalization helps to accelerated economic growth in the medium run and by increasing allocate efficiency within agriculture sector and between agriculture and non agriculture by increasing real investment due to change in term of trade effects. In the long run agricultural liberalization increases out put of all agricultural commodities excepting coarse grains and other foods (sugar, oil etc.) The average welfare indicator such as average calorie intake, average equitant income, and real income parity will improve under agricultural trade liberalization.

Chattopadhyay (2003) observed that in fact any reference to WTO evoked a mixed reaction.-a sense of outraged combined with a resigned acceptance of

its inexorability and inevitability. The Macbethian dilemma of 'to be or not to be' is all the more pronounced in a developing country like India, -which is trying to cope with it's backwardness over shadowed by the impact of globalization in trade and commerce as a member of the WTO. There is no denying the fact that in a unipolar world of today our country cannot afford to remain isolated, and allow it to miss the opportunity of international trade liberalization and removal of protectionist practices of advance countries. But at the same time, we cannot keep our eyes closed to the negative impact of it.

Padoshi (2003) viewed that the most important benefit of the WTO for the farmers is the market access and the freedom to sell the produce. But unfortunately small farmers of India do not have such marketable surplus and therefore it would not be possible for them to reap the benefit of the WTO .In the existing agricultural setup In India, benefit from WTO appears unlikely for India's small farmers. They might even suffer due to WTO.

Nambiar (2003) referred Vaidyanatan and argued that the insulation of agriculture from foreign competition also meant denial of world market price. It is estimated that taking all crops together were getting 16-25% less in the early 1990's then what they would have in the world market (Vaidynathan) if we assume that domestic market get aligned with the world market there would have been a significant gain to the farming community in India. To cite the magnitude of the denial he assume that if price difference were 20%in 1998-99 the agricultural community was deprived Rs.96566 carore of income as the total income originated from the agriculture and allied activities was 482832 crore in the year (RBI 1998-99).

Rao (1994) and Singh (1995) view that these policies were introduced with the expectation that the integration of the domestic market with the international market not only help reduce the distortion of domestic prices but also significantly increase the overall agricultural productivity by an efficient allocation of resources. Rao further argues that "the farmer (typically, small, poor and unorganized) has now opportunities open to him to increase his

output as also widen his contacts with the market and the world outside the village. However, it would not be easy for him to make the transition from the survival oriented traditional attitudes and modes of behavior which still prevail among a large number of farmers to the ruthlessly competitive environment of the modern markets dominated by powerful groups. Obviously, the farmers would remain vulnerable in the new environment until he acquires the capacity to withstand its pressures.

Sreekantaradhya (2003) defined that in the Uruguay Round, India did not need suffer in respect of domestic subsidies because India's AMS (Aggregate Measurement of Support) was less than the limit fix by WTO and consequently there no need to cut subsidies. PDS also remained unaffected. But the expansion of agricultural export has not been satisfactory. The reason for this is stringent sanitary and Phytosanitary conditions product standardization and quality assurance. India and other developing countries should press for standardization of these requirements in the next round of negotiations.

Sabanna and Kallur (2003) studied that after the formation of WTO the volume of total export has been increasing, but in case of agricultural products, it has shown a declining trend in recent years. After having the share of 20.4% in total export during 1996-97, it came down to 13.5% in 2000-01. The world market is becoming more protectionist, in the same that the developed countries are using several trade and non trade barriers in the name of technical standards, environmental and social control as well as imposition of anti dumping duties, countervailing duties, safeguard measures, sanitary and phytosanitary measures which have affected market access for export.

The view expressed by the scholars are not the same, but one thing is clear that the farmers will have to face strict competition to get remunerative prices for their products under new Economic Policy Regime. Deshpande (2002) expressed his view that due to the liberalization policies there has been a sharp fall in prices of many agricultural commodities across different regions in India, which have in some instance lead to farmer's suicides.

Ahluwalia (2000) states that there are no two opinions about the fact that the removal of import restrictions under the Agreement on Agriculture has some dent on the domestic market prices. However, since the degree of removal of restriction is not same across different commodities, its impact on prices is expected to be varied across different crops as well as among regions because of varying cropping pattern.

2.3 Trade Competitiveness of Indian Agriculture:

Export competitiveness of agricultural commodities is a derivative of complex integration of domestic supply parameters, policy regime and external market conditions. Export competitiveness of a commodity with so many other factors which includes the technology up gradation, infrastructure and other trade facilities, subsidies and protection to farmers; is basically depends on the difference between the domestic prices and world prices. The higher the world prices relative to the comparable domestic prices, the high would be the competitiveness. Price compare issues vary between commodities as they reflect the complex interaction between world and domestic demand and supply factors (Batacharya, 2003).

There are so many studies of trade competitiveness of different commodities i.e. Batacharya, 2003 (Spices, Fisheries, Horticulture, Tea, Coffee, Wheat, Rice, Cotton, Sugar etc.), Chand and Jha-2001 (Wheat, Rice, Maze, Cotton, Sugar), Purcell and Gupta, 1995 (Cotton), Bahtiya, 1994 (oil Seeds), Diwakar, 1993 (Wheat and Rice), Gulati and Purcell, 1989 (Wheat rice and Cotton) etc. which has examined the trade competitiveness of different agricultural commodities for India as well as for different states.

Gulati (1989), Purcell and Gupta (1995), find that almost all varieties of Indian cotton more or less disprotected or not competitive in 1980's and 1990's. Gulati (1989), find that the NPC, EPC, and ESC ratio are greater than the unity for groundnut under both exportable and importable hypothesis. These export commodities like rice and cotton appears to be efficient import substitutes

rather than efficient exportable largely on account of falling international prices of these commodities due to variety of reasons.

After the establishment of WTO's agreement on agriculture trade competitiveness has become a major issue. Many countries are protecting their farmers and agriculture sector by providing them different types of incentives. High cost of production; low level of productivity and rising domestic demand pressure has together affected India's export. Further export duties; export CESS and export controls lower the profitability of exportables. Thus Indian's inability to maintain the market share of agricultural export is primarily due to domestic factors.

The studies done in past find that Indian farmers are remain dis-protected in 1980's (Diwakar, 1993) and later as well (Chand, 2001). Thus, to survive in international agriculture market agriculture sector needed rethinking of our agricultural policy including minimum support price, subsidy and agriculture price policy system. Chand and Jha (2001) argue that India has strong comparative advantage in agriculture over many developed countries in the domestic prices.

According to Karwasra, et.al. (2003) Continued higher support prices, large market supplies and international price situation have created serious problems in marketing and disposal of surplus cereals. The present emerging export scenario does not seem to offer much scope for crops having large surplus in the country. Further they suggest "in the context of world trade liberalization to remain in competition, the farmers need to chalk out their production plan in such a way that will improve the quality of the produce as per demand of the international consumers.

Sabanna and kallur (2003) find that among the domestic factors that continue to hamper our trade competitiveness and export growth are infrastructure constraints, high transaction cost, quality problems; quantitative ceilings on agricultural export and constraint in attracting Foreign Direct Investment in the export sector remain problematic. India's agriculture export also faces certain

constraints that arise from conflicting domestic policies relating to production, storage, distribution food security, pricing concern etc. High domestic price of products in comparison to international prices bulk exports like sugar, wheat etc. make our exports commercially less competitive.

Singh and Vasisth (2002) noted that in post-WTO period export price of all agricultural commodities would drop sharply, whereas domestic price would move up, may be under pressure of rise in support price. This would reduce the competitiveness and profitability of export of these commodities. The only way to improve our competitiveness is to ensure that our domestic prices are brought down.

Ahamad and Khan (2003), elaborate that while the agricultural trade liberalization was, justified by the argument that Northern agricultural markets would open up to India. India's export to Europe has actually declined from 13% to 6%. This is because of the fact that high subsidies and protectionist barriers still largely maintained in the North. More than the six years of experience with WTO regime has shown that agricultural trade liberalization has become in fact, a unidirectional phenomenon that opens market in South for Northern businesses corporations but close markets in the North for trade from South.

Viswanathan (2003) realize that the gradual reduction in subsidies in a developing country like India as against the high level of subsidies provided by developed countries results in high cost of production for comparable agricultural crops and affects adversely the growth of the agriculture and allied exports in India. Liberal imports of agricultural commodities may create difficulties for supply demand balance for essential commodities, especially foodgrains in a developing country like India in the event of natural calamities like flood and drought. The shift in cropping pattern from subsistence farming (labour intensive) into commercial or export oriented farming (capital intensive) will adversely affect the employment opportunities with agricultural trade of India.

Thulesamma (2002) realized that excessive increase in support prices, more and above the cost of cultivation together with open-ended procurement policy has become counter productive leading to many serious problems such as shift in cropping pattern, monoculture, burgeoning food grain stocks, sinking of ground water, salinisation of soil and other environmental problems due to intensive cultivation.

Valdez and Ziets (1980), has been estimated that a 50% reduction in the developed countries trade barriers on food would lead to an 11% increase in the export of these commodities from the developing countries. The level of supply of commodities in a region and the availability of supportive infrastructure (market, road, etc.) facilities will play greater role in deciding the domestic prices. For instance the study of Chand (1999) concludes that liberalization of trade would raise domestic wholesale and farm level prices of rice and maize, whereas the prices of edible oil and oilseeds like rapeseed/mustard oil would decline. This further affected the trade competitiveness of these commodities.

2.4 Parity Between Input and Output Prices and Changing Pattern of Agriculture:

George and Singh (1971) in their study for Haryana for the period of 1967-68 to 1970-71 examine the changing pattern of inputs cost and changes in the factor products prices relationship and impact of prices on returns of farmers. They found that total cost of inputs had increased by 23 percent for each wheat and bajara. The gross returns to the farmers have declined for all crops except for cotton.

Nandlal and Grower (1976) has attempted by collecting the data for the year 1974-75 and 1975-76 for Haryana state. The study revealed that the prices paid by the farmers for modern inputs and productive services increased faster than the increase in the output prices. It was also found that the level of

profitability was enough to attract the farmers to adopt the full package of fertilizer in wheat cultivation.

Acharya (1981) conducted a study in the state of Rajasthan by using the time series data for the period 1964-65 to 1975-76 to determine inter crop market price parity, inter crop gross income parity, inter crop purchased input- gross income parity, inter crop cost 'C' gross income parity etc. He concluded that actual prices received by the farmers have been higher than procurement prices. The input -output price parity has remained unfavourable to wheat. The inter crop parity for wheat and gram in terms of administered prices , market prices, real prices, gross income and rates of prices received to prices of purchased inputs and cost C has remained in favour of gram.

2.5 Impact of Farm Prices on Income and Poverty:

Grewal and Rangi (1976) used the secondary data for the period 1966-67 to 1975-76 for Punjab. They found that when there was an increase in the cost of production of wheat and paddy due to price hike in inputs, the product prices were enhanced. There was non profit per hectare over A_2 cost.

Mellor (1978) observed that changes in food prices cause a larger percentage change in the real income of low income consumer but a larger absolute change in the real income of high income consumer. The effect of relative price change on agricultural producers differs from the effect on consumer in two important respects. First, the income effect of, assuming production constant, is in the same rather than in the opposite direction as the price changes, Second, the largest effect, both relative and absolute, fall on the producers with the largest marketing.

Tyagi (1979) conducted the study based on NSS Labour inquiries for the period 1959-51 to 1956-57 and 1963-64 to 1971-72 to know whether high farm prices act against the interest of small farmers and land less labourers. He concluded that in the long run high prices were in interest of agricultural labourers and those deficit farmers who work for cash wages on another's farm: though in

very short run, a rise in farm prices may seem to be against them. Prices also affect both small and large farmers who have a surplus to sell. The deficit farmers who grow too little has to work for others and quite often he work on farms for a fixed share of the crop, which is worth more when prices are high.

Gupta (1980) reviewed agricultural policy and examined its impact on the income of farmers in India for the period 1965-67 to 1974-75. He found that agricultural prices have risen at faster rate than non-agricultural prices. The agricultural production as a whole was only insignificantly related to the relative prices. The land yield and marketed surplus were positively and significantly influenced by the relative or absolute prices.

Krishna and Raichaudhari (1980) examined that evidence of the relationship between cost of production and purchase price of food grains. They observed that with respect of wheat although in 1950's the purchase price did not cover the full cost of production, the farm harvest price was above the cost of production in all the wheat producing states.

Sinha (1981) conducted the study for the period 1969-70 to 1979-80 for four states viz., Andhra Pradesh, Punjab, Gujarat and West Bengal. It was found that disparities in the regional income have two elements: production denoting the technology and prices. The latter accounted for about three fourth of the disparity in the regional income.

Traill (1982) described the specification, estimation and simulated the effect of one percent increase in support price in U.K. He found that one percent increase in support price was estimated to reduce the level of employment of hired labour by around one percent. Net farm income increased by around 10 percent and this was capitalised into a similar increase in land values. However, the author had little emphasis on the impact of the input prices.

De Janvry and Rao (1984) concluded that during the 1970s the purchase prices fixed by APC, were in general found close to (or above) the weighted average cost of production for wheat and rice. They further argued that higher support prices for wheat and rice was the main factor responsible for heavy food

subsidy and it has not benefited the marginal and landless agricultural labourers and the present policy of pricing agricultural output and input has also created interstate and inter class income disparity.

Dantawala (1986) examine the impact of new technology associated with HYVs of seeds on agricultural growth and food production in India. If food prices are to be kept low without becoming un-remunerative to producers, a technology that induces higher return to inputs like irrigation and fertilizers must be used.

Lele (1986) found that Dharam Narain's emphasis on the size of agricultural production and prices as determinant of poverty was as significant for Africa as India. The author pointed out that rather than nominal prices of agricultural commodities assumed by Dharam Narayan in India, it is the relative price between exportable and importable and between food crops and export crops that influence pattern of product and consumption and thus level of poverty in Africa. The domestic term of trade are influenced by the international term of trade and the extent of net surplus extraction by the public sector. The latter influences level of poverty through its effect on both prices and public expenditure.

Mellor (1986) reported that lower food prices reduce income of net sellers of food and raise the income of net purchasers. Thus, urban poor clearly benefit from lower food prices. Rural people in extreme poverty are largely land less or at least net purchasers of food, and hence they also benefit directly from lower food prices. Generally, only those whose income is well above the extreme poverty line can sell a sizeable proportion of their food production to finance purchases of non-food goods and services.

Singh et al.(1986) examined the relationship between prices of food grains and agricultural inputs for the period 1975-76 to 1984-85 for Uttar Pradesh. They noted that except in case of fertilizers and pesticides, the price index of other inputs like water rates, wage rates of labour and, machinery charges etc. increased at a much faster rate than the price index of wheat and paddy during

this period. It resulted in a declining trend of net returns in wheat and the net return was almost constant in paddy crop.

Swami and Gulati (1986) in their study for India found that the net income of farmers has been continuously falling since 1971 despite their efforts to counter this retrogression by means of adopting land augmenting productivity rising technology. The wheat cultivating household experiences an annual shrink-age in their net income ranging from Rs. 50 to Rs.360, while paddy cultivating household suffered in the range of Rs. 5 to Rs.100. They further concluded that the erosion of price margin over cost is primarily accounted for by adverse price movement.

Tyagi (1986) in their study of Punjab stated that the analysis of cost of production of wheat and of the prices fixed indicated that early seventies, the margin allowed in the prices fixed over the operational cost was as high as 110 percent. As the food grain availability position improved, the margin was reduced to 74 percent by 1978-79 and further to 61 percent by 1983-84. The larger margin allowed in the early phase induced the farmer to adopt better technology and to invest in a big way in yield raising infrastructural development programmes. As a result, the productivity increased and the unit cost declined. Thus, because of a large increase in productivity, the farmers overall return did not suffer even when the margin were lowered and the process of raising yield and investment continued.

Most of the studies reviewed on change in farmers income showed that farmers income has declined over years as a result of adverse price movement and increase in price accentuate incidence of poverty. Some study used regression analysis taking prices as one of the explanatory variable to find out the magnitude of poverty. Some studies also used wholesale price index and consumer price index for agricultural labourers as deflator for working out the change in income and Sen's index were also used to estimate the incidence of poverty. These following debatable postulates emerge from the review of literature mentioned above:

- ↳ WTO provide level playing field to its members and it exhorts better allocation of resources and comparative advantage.
- ↳ Free trade under WTO regime is helpful to accelerate economic growth, reduce poverty, stabilize market prices and improve agricultural trade.
- ↳ Liberalization of trade has likely increase the prices of rice, wheat and cotton, which leads increase in export, on other hand decrease in price of pulses and oilseeds encourage the import of these commodities.
- ↳ Integration of domestic market with international market helps to reduce the distortion of domestic prices and increase the overall agricultural productivity, which results as an increase in income.
- ↳ WTO related policies have changed production, cropping pattern and food security scenario.
- ↳ Globalization of agriculture provides opportunities to export of high value labour intensive allied agricultural product.
- ↳ Prices of many commodities across different regions in India has fallen sharply which have in some instance leads to fallen suicides which reflects the lack of disposable income and purchasing power.
- ↳ In post WTO period rise in support price reduces competitiveness and profitability of export of agricultural.

However there are a number of issues which appears from the review of literature, but keeping in view the time and resource limitations few of it is investigated in fallowing chapters of this study.



Chapter Three: Methodology

ethodology

The government interventionist policies affect the actual prices received by producers. The impact of such policy-induced changes is reflected in the divergence of domestic prices of different commodities from their corresponding international prices (the price which farmers would have got under a free trade scenario). The divergence between domestic prices and international prices (border equilent prices) shows the level of effective incentive /disincentive for the producer of various agricultural commodities which further determines the trade competitiveness of a commodity.

Trade competitiveness basically depends upon the level of domestic prices relative to international prices. In its simplest form trade competitiveness, say export, can be measured by comparing domestic prices with international price expressed in domestic prices net of freight, transport and related costs involved in taking produce from exporting country to importing country. If domestic price of any commodity is lower than the net export price then the commodity is export competitive otherwise it is not export competitive. Similarly under importable scenario, if domestic price is lower than international price plus transportation, freight, insurance and other cost involved in taking produce from foreign market to domestic market than domestic produce is import competitive otherwise it is not import competitive.

3.1 Estimation of Protection Coefficient:

The simple concept of domestic price relevant to international price will further be refined and made more sophisticated by taking into account cost of production and other factors affecting comparison of competitiveness into account. There are three main measures, which have been used to reveal trade competitiveness — Nominal Protection Co-efficient (NPC); Effective

Protection Co-efficient (EPC); and Effective Subsidy Co-efficient (ESC). These are used to find the level of protection/disprotection.

3.2 Nominal Protection Co-efficient (NPC):

The original research in India was principally guided by a manual on the empirical estimation of these indicators. Pursell Garry and Neil Roger (1985), and further more by Ramesh Chand (1989), D.M.Diwaker (1991), and others has prepared some estimations of these indicators for different commodities on different variant of prices. Very roughly, the nominal protection of a commodity is simply an estimate of the extent to which its price has been affected government interventions in the country's international trade. In the study, nominal protection is measured as the Nominal Protection Coefficient (NPC) of a commodity, defined as the ratio of that commodity's domestic price to its international reference price. Nominal Protection Co-efficient (NPC) is the simplest indicator of domestic protection and export competitiveness, symbolically the measure is given by:

$$NPC_i = \frac{P_{id}}{P_{iW}}$$

Where, NPC_i = Nominal Protection Co-efficient of 'i' commodity;

P_{id} = Domestic price of 'i' commodity and;

P_{iW} = World reference price (Border Price Equivalent) of Commodity 'i' adjusted for transportation, handling and marketing expense, i.e. what the farmer would have received under free trade at the same exchange rate.

If the NPC is greater (less) than one, then the commodity under consideration is protected (disprotected or in effect taxed), compared to the situation that would prevailed under free trade at the same exchange rate. The nominal protection of tradable inputs is defined in the same way. Throughout the study

second calendar year has been used to refer to the fiscal year. For example 1985 mean Indian fiscal 1984/85, and so on.

In estimating NPCs, the reference periods for all the estimates are Indian fiscal years, which begin on April 1 and finish on March 31 during the following calendar year. NPC greater than one indicate effective incentive to producers compared to free trade scenario and NPC lower than unit indicates that commodity is disprotected. Similarly, $NPC < 1$ indicate the commodity is exportable and $NPC > 1$ indicates the commodity is importable. NPC measures the divergence between domestic and international prices, it does not account for discrepancies in the prices of various tradable inputs, used in the production of these commodities.

3.3 Effective Protection Co-efficient (EPC):

The effective protection of a commodity is an estimate of the extent to which the margin between its selling price and the cost of its internationally tradable inputs has been widened or narrowed by the combined effect of the protection of the commodity and the protection (which could be negative i.e. a subsidy) of the tradable inputs. In this study it is measured as the effective protection coefficient (EPC), which is defined as the ratio of the value added at domestic prices (i.e. the observed value added) of the production activity, to the estimated value added at reference prices. Effective Protection Co-efficient (EPC) is improvement over NPC to the extent that it takes care of variation in domestic and international prices of tradable inputs. It is defined as the ratio of value added at domestic prices to ratio of value added at border price expressed in local currency and is given by:

$$EPC_i = \frac{Q_i (P_i^d - \sum_{j=1}^K A_{ij} P_j^d)}{Q_i (P_i^w - \sum_{j=1}^K A_{ij} P_j^w)}$$

Q_i in this expression cancel out and the whole expression in terms of value added reduced to:

$$EPC = \frac{V_i^d}{V_i^w}$$

- Where,
- EPC_i = Effective Protection Coefficient of 'ith' commodity.
 - Q_i = Quantity of output of 'ith' commodity.
 - P_i^d = Domestic price of Commodity 'i'
 - P_i^w = World reference price (border price equivalent) of commodity 'i' adjusted for transportation, handling and market expenses.
 - A_{ij} = Quantity of 'jth' input required to produce a unit of commodity 'j'
 - V_i^d = Value added at domestic price.
 - V_i^w = Value added at world reference price (border price equivalent)

Like NPC, EPC greater (less) than unit indicates effective incentive (net taxed) to producers compared to free trade scenario. Because they take account of the effects of the protection of internationally traded inputs as well as of the protection of the commodity itself, EPCs are more complete indicators of the incentives to producers resulting from trade policies, than NPCs. As with NPCs, in the study the convention has been adopted that EPCs greater than 1

represent positive protection at the observed market exchange rate, while EPCs less than 1.00 represent negative effective protection and EPCs equal to 1 represent zero effective protection. Effective protection can alternatively be expressed as a rate of protection/disprotection; for example NPC of 1.40 corresponds to effective protection of plus 40 percent, while an NPC of 0.85 corresponds to effective protection of minus 15 percent.

Estimating the EPC for a commodity requires information on the internationally tradable inputs used to produce it and estimate of the nominal protection of these inputs. For the principal cereals and some of the other crops, the shares of tradable inputs in the cost of production in each of the principal states are published in *Indian Agriculture in Brief*. For most crops it turned out that the principal tradable inputs are fertilizers, seeds and farm machinery. There are others, but with some exceptions they did not constitute a large enough share of production costs for their protection rates to make a noticeable difference to the effective protection estimates; for example, for the protection of pesticides used in producing rice and wheat has not been included. The shares of the major inputs in production costs varied from year to year. Averages for a number of years have been calculated and used these averages in each year. For fertilizers, we used nominal protection estimate done as part of the World Bank studies on wheat and rice and later extended by Ashok Gulati (Gulati, 1990). Tractors were the dominant component in the cost of farm machinery, and to represent farm machinery nominal protection we used estimates of tractor nominal protection faced by farmers, as reported in a paper by G.D. Kalra and Ashok Gulati (1992). However data on the CIF prices of seeds are not available in order to estimate seed nominal protection, and assumed that seed nominal protection was the same as the nominal protection of the particular crop. Therefore the method adopted in other studies (i.e. Purcell, Anju Gupta, Ashok Gulati etc.) has been taken to arrive at the NPC of seeds.

3.4 Effective Subsidy Co-efficient (ESC):

In India, farmers receive subsidies in various forms, and in addition are exempt from Income taxes. The fertilizer subsidy is one of the largest, and that is treated in the estimation of the nominal protection coefficient of fertilizers and captured in the effective protection coefficient. Apart from this, there are three other major subsidies; two on non-tradable inputs, canal irrigation water and electricity principally used for pump sets, and subsidized credit.

In the background papers these subsidies are in the first instance quantified by estimating effective subsidy coefficients (ESCs). The ESC is simply the numerator of the effective protection coefficient plus the total subsidies per unit of the commodity, divided by value-added in reference prices i.e. by the effective protection denominator. The rationale for the ESC concept is that the subsidy per unit of the commodity is treated as if it is equivalent to an increase in the price of the commodity. For example, if the combined value of the subsidies on irrigation water, electricity and credit is equivalent to 10 percent of the domestic selling price of the commodity, the ESC pretends that the same incentive effect to the farmer would result from a 10 percent increase in his selling price.

Thus it can say that Effective Subsidy Co-efficient (ESC) is further improvement over NPC as it takes into account the subsidies and taxes on traded inputs. It is the ratio of value added at domestic price adjusted for subsidies and taxes to the value added at border price. It is proposed to be calculated as:

$$EPC_i = \frac{Q_i^k \left[(P_i^d - \sum_{j=1} A_{ij} P_j^d) + \sum_{j=k+1} A_{ij} S_j - (\sum_{j=k+1} A_{ij} T_j) \right]}{Q_i^k (P_i^w - \sum_{i=1} A_{ij} P_j^w)}$$

Here, S_j and T_j are subsidies and taxes respectively while other expressions are same as mentioned above for NPC and EPC.

3.5 Domestic Prices:

Agricultural commodities are often exchanged several times at different prices between the stage at which these leave the producer and that at which they reach the ultimate consumer. The price, which the farmer gets for his commodity at the village site, is known as the Farm Harvest price. The price, which the ultimate consumer pays specially for relatively small transactions, is the retail price. The prices in between these two are known as 'wholesale prices'. These are the three type of wholesale prices accordingly as the commodity passes through the primary wholesale prices is closer to the farm prices. The margin between two prices is accounted for by the incidental charges such as 'Aratdars' commission charges for bagging, weeding, storage, transport etc. The terminal wholesale prices are generally near to the retail prices. The different between the terminal wholesale prices and the retail prices is composed of retailers' profit, transportation, storage, packaging, and other incidental charges. The term agricultural prices cover's wholesale, retail and farm harvest prices of agricultural commodities in the study.

3.6 Wholesale Prices:

The Whole Sale prices are generally taken as the rate at which the relatively large transactions of purchase are effected for further sale. It relates to the actual price at which transactions take place irrespective of the term of contract and without excluding the incidental charges, if these are normally included in the price quoted¹⁶.

□ The earliest series of wholesale prices data available in the country related to 1897 and were published in "Prices and wages" a publication issued by the department of commercial intelligence and statistics. At present ministry of Agriculture, Government of India and many other agencies publish these data.

3.7 Farm Harvest Prices:

Farm prices of a commodity is defined as the average whole sale prices at which the commodity is disposed of by the producer to the trader at village site during the specific harvest period. Usually it is the price at which the farmers sales his output at the village site during six to eight months after harvest.

3.8 Minimum Support Prices:

The agriculture price commission had set up in January 1965 to protect the vulnerable farmers again fluctuations of prices. The commission announces every year support/procurement prices for many crops, which assured the farmers that the prices of food grains and other commodities that they produce would not be allowed to fall below the reasonable minimum level. In the rewords procurement prices is the prices at which the government agencies procures the crop from the farmers/millers¹⁷.

In this study three variant of domestic prices will be used, i.e. procurement prices, farm harvest prices and wholesale prices in short:

- ✦ Procurement prices (PP) are the price at which the government agencies procure the crop from the farmers/millers.
- ✦ Farm harvest prices (FHP) are the price at which the farmers sells his output at the village site during six to eight weeks after harvest; and,
- ✦ Wholesale price are the prices that prevail in the wholesale market of the specific variety.

The governments' procurement prices which are announced in advance of the sowing seasons and so the prices include some transport and marketing expenses. A key advantage of using procurement or wholesale prices is that they distinguish different varieties and qualities and give weekly and monthly

□ Even though government of India started fixing procurement prices of food grains and saturatory minimum and maximum prices for cotton during the World War II and the principle was later stretched to sugarcane and jute, consumer protection, by and large to be the guiding principle.

average prices in the major markets for long periods going back to the 1960s and earlier. An alternative would be to use statistics on farm harvest prices, but these are usually averages with unknown weights of different varieties, the coverage is uneven and uncertain, and it is difficult to obtain reasonably lengthy time series. Different variant of domestic prices are given in Annexure -1. The domestic prices used in the estimation of nominal protection are intended to approximate as closely as possible the prices that the farmers receive during the harvest. Prices during the rest of the year reflect a variety of other factors including storage costs of traders, and using them to measure incentives would include the incentives for post harvest storage and distribution functions as well as farming. The principle followed has therefore been to calculate average prices during the periods during which the bulk of each crop is harvested. But it should be noted that they differ considerably as between commodities e.g. most of the wheat crop in the northwest is harvested and sold during a short six-week period. There are also differences for the same commodities between producing regions. Some of the harvest periods also overlap fiscal years but have been assigned to particular fiscal years in presenting the estimates. There may be substantial differences between the prices of different varieties and grades of a commodity, and therefore care has been taken to specify which ones have been used in the price comparisons. As far as possible we have used price data for the same or similar varieties in the estimates for each year. The varieties for which price comparisons have been made are generally those with the largest production and reasonably represent the overall protection situation of the particular commodity. The prices of Uttar Pradesh "common rice" (Fair and Average Quality) has been compared with the prices of exported Thai 15% broken rice, but the broken grain percentages in the Indian rice vary to unknown and unreported extents from less to considerably more than 15 percent. These problems of representativeness and accuracy are inherent in all price-comparison based estimates of incentives, and should be recognized and allowed for at the outset.

3.9 Verity of Rice and Wheat:

For rice, FOB price Bangkok has been considered as the price relevant for export of state rice, which is flaky and long slender grain in quality. There are several kinds of international prices quoted for rice, i.e. Diwakar (1993) used Thai Cargo – second grade which is normally 13 per cent Broken, however, Gulati *et.al.* (1991) Used Thai – White, 5per cent broken rice. For various reasons actual price received for rice export is found to be 90 per cent lower than FOB Bangkok prices for 5 per cent broken rice (Chandra, 2001) and price of 5 per cent broken rice is found to be closely related to the prices received for export of non-basmati rice, therefore, world reference price for concerned rice export should be taken as 90 per cent of the international price for 5 per cent broken Thai rice. Further these prices has been adjusted for domestic transportation and marketing cost between port and producing region. Under importable hypothesis domestic transport cost and port clearance charges will add to the imported CIF price of rice to arrive at import reference price.

For international prices of wheat US Hard winter No.2 (Gulati, *et.al.*, 1991; Chand, 2001), West Red Spring No.1 (Diwakar, 1993), are considered. Here US HW2 wheat prices has been used for world reference price, which is closely related to price received for export of wheat (Chand, 2001). The export data for the last ten years shows that India realized 10 per cent lower price than US HRW wheat, because Indian wheat variety are somewhat inferior compared to US HRW wheat. Accordingly 90 per cent of US HRW No.2 wheat will consider as FOB price for wheat export. Further, these prices has been adjusted for domestic transportation and marketing cost between port and producing region. Under importable hypotheses, international oceanic freight has been added to US HRW No.2 wheat FOB price at US gulf port. Further domestic transport cost and port clearance charges have been added to the imported CIF price of wheat to arrive at import reference price.

3.10 Selecting Reference Prices:

Having estimated the different varieties of average domestic prices of representative product varieties during the principal harvest periods, the next step is to estimate corresponding average *reference prices*. Here reference prices have been defined as what the prices of the domestic varieties would have been under conditions of free trade at the same exchange rate. Estimating reference prices would be straightforward if there were substantial imports or exports of the same or a similar variety. In that case, provided there were no non-tariff controls, the tariff (or the export tax or subsidy in the case of exportables) after adjustment for domestic port, transport and marketing costs, would provide a reasonable first approximation of nominal protection. Even if there were non-tariff controls, a reference price could be derived from recorded CIF import prices or fob export prices. The principal starting point for the estimation of reference prices was published data on international commodity prices.

In doing so it has been tried to find as far as possible to find international prices for the same or a similar specification, variety and quality as the domestic product. By the same token, we used averages of the international prices during the same periods has been used as the average domestic prices with which they were being compared. Finding a product traded internationally for which a consistent long term price series was available was crucial but difficult. While measuring NPC, EPC and ESC, appropriate world reference prices are required to be identified and selected. This would be different under exportable and importable hypotheses. World reference price, to which the domestic prices have to compete in exportable and importable hypothesis, is proposed to be calculated as follows. FOB prices of wheat and rice are given in Annexure-2.

3.11 Importable and Exportable Hypotheses:

In estimating the nominal protection indicators of farm commodities, transport and other related costs - both international and domestic - can make a very

large difference. International transport costs provide a degree of protection for domestic producers against imports, whereas in exporting the domestic producer's price must be low enough to make the product competitive in foreign markets, including transport cost to the market. Consequently, the observed domestic price of a commodity may well be lower than the import reference price, while at the same time substantially exceeding the price that would have to be charged to capture export markets. Similarly, domestic transport costs provide additional protection to production in inland areas, but on the other hand reduce the prices that producers would receive if they were competing with imports at a port city, or if they were exporting. The importance of transport costs depends on a variety of factors, including the location of foreign suppliers of imports and foreign markets for exports, the location of domestic producing areas in relation to the main ports, and the value of the commodity in international trade. Purcell (1996) in his study find that, transport costs were very high in relation to the international prices of low-value commodities such as maize, sorghum, and wheat but considerably lower in relation to the international prices of higher-value commodities such as rice, sugar and long staple cotton. He estimate that under free trade in the 1990s, the price that the farmer would have received for wheat under free trade would have been about 40 percent lower than the price at which he would have had to compete with imports. By contrast, the estimated free trade export price for milled common rice was about 19 percent lower than the corresponding import competing price. In order to deal with these issues incentive indicators has been calculated under two alternative hypotheses:

- a) The *importable hypothesis*: when the foreign product is an actual or potential substitute for the domestic crop in domestic markets.
- b) The *exportable hypothesis*: when the domestic crop is or potentially could be exported to compete in foreign export markets.

Importable Hypothesis:

Reference Price = Border price + port clearance charges - Traders Margin
- Marketing cost

Border price = (FOB Prices + freight Charges) X Exchange Rate

Exportable Hypotheses:

Reference Price = (FOB Price at domestic port X Exchange rate) - Port
Clearance charges - Marketing cost - Traders Margin -
Transport cost from domestic port to domestic market
center.

3.12 Domestic Transport Costs:

As noted above, domestic transport cost affects the reference prices of concerned commodity as well as the international transport costs. In India, these domestic costs are sometimes as great as or larger than international costs. For example, Purcell (1996) estimated that the storage, marketing and transport cost of shipping wheat from Punjab to Bombay is only slightly lower than the cost of shipping wheat from the US gulf to India. Hence the price the UP's farmer would receive under free trade depends on where his wheat would have to compete with foreign wheat under free trade. For this, some kind of geographical free trade scenario is needed which would indicate these points of competition. In this study it is generally assumed that under free trade import substitutes would compete with imports in the principal port cities, so that the reference price in the supplying region would be the landed price of the import in the port city *minus* marketing and transport costs to get the domestic product to the port. Similarly, the reference prices of exportables are the estimated fob prices at the port, *minus* port charges and *minus* marketing and transport costs from the supplying region to the port. Assuming competitive conditions in the upcountry region shipping to the port city, this would then be the prevailing price in the state under free trade, since if prices for delivery from the same

supplying region to any other domestic market were higher, supplies would be diverted to that market and the prices would fall to the level of the reference price. For both commodities, the scenario just described is only one of a number of possibilities and may not be the most plausible in some cases. For example, the reference price would be higher and estimated nominal protection would be lower if the imported commodity were to compete with the domestic commodity at some intermediate point between the supplying region and the port city, since in that case it is needed to add transport costs to the area of competition, to the landed price of the import at the port, and deduct the transport cost from the supplying region to the area of competition.

As regards domestic transport costs, study of Sharma¹⁸ (1991) has been followed for estimates of rail and road freight rates for wheat and rice between producing regions and major ports and markets for each year between 1985 and 2004. Model composition of traffic by different slabs is given in Annexure - 3. The study also take into account general statistics on the average variation of road and rail freights according to distance, as well as statistics on the average proportions shipped by these two modes for different distances. These proportions have been used to calculate weighted averages of the road and rail freight rates and are used in the estimation of the commodity reference prices.

3. 13 Place of Competition:

In estimating nominal protection under the exportable hypothesis, we have made various assumptions has been made regarding the points of competition with similar foreign products. For example, for wheat it has been assumed that Indian wheat would compete with US wheat in deficit countries in North Africa, represented by Tunis. In this case, Tunis is roughly equidistant from India and the US, therefore it is considered rational that fob prices in India, would be the same as fob prices in the US. For rice, Myanmar is assumed as the place of competition, which is equi-distance from India and Thailand.

¹⁸ Sharma (1991)

3.14 International Transport Costs and Port Charges:

In other cases we made separate estimates of the freight from other major exporting countries to the export market in order to estimate the price at which the Indian product would have to compete, and deducted estimated freight to that point from India to give an estimate of the Indian fob price. These estimates focus on the actual or potential competitiveness of the Uttar Pradesh. For example, for wheat under exportable hypothesis NPCs are estimated based on Lucknow. The study by Sharma includes a discussion and presents estimates of international freight rates and various international freight rate indices over the period 1981 to 1990. Together with other estimates in the other studies, these were used for the nominal protection estimates for the 1980s. However, consistent series of international freights for all the crops are not available for the whole 1985-2004 period. The most complete are sixteen series for wheat based on different origins and destinations published in the FAO yearbooks, including wheat freights from US gulf ports to Japan and Rotterdam, and to India in some years. These have been used to estimate freight rates for wheat and rice

However the level of freight rates depends among other things on the volume of trade and the efficiency of ports. In using published international freights as a basis for estimating Indian freights, we generally assumed implicitly that if trade had occurred, it would have been in large ships in large volumes, and that port capacities would have been adjusted accordingly without, for example, port bottlenecks and long waiting times for ships which would be reflected in freight rates .

Estimates of port costs –consist of mainly the cost of unloading imports or loading exports, but also other expenses such as customs clearance and storage- are adopted from Purcell (1996) as it provides systematic approximation of port cost for concern commodities.

3.15 Marketing Costs and Processing Cost:

Moving commodities to be exported from port cities or to compete with imports there or elsewhere also involves marketing costs which include interest charges, handling expenses, storage charges, overhead expenses, miscellaneous expenses arising out of transit and storage losses, and wholesale distribution margins. These costs vary considerably by year, by season and by crop. In the case of both crops, the general treatment follows that adopted in the different studies. However some general rules of thumb have also been used. In particular, based on the study by Sharma and a review of a number of studies by Gulati et al (1990), in the case of food grains and oilseeds in the 1980s, marketing costs has been considered as to consist of an interest charge for two months at an 18 percent rate applied to the procurement price, plus Re 5 per quintal to represent other marketing expenses. To project these estimates forwards and backwards, marketing costs has been calculated for each commodity during twenty years from 1985 to 2004. These percentages were applied to average prices to give estimates of marketing costs in other years.

3.16 Incentive Indicators and the Exchange Rate:

The agricultural trade and other policies considered in this study is part of a broader system of trade protection and subsidies, which directly impacts on all the tradable activities in the economy. A key economy-wide impact is on the exchange rate, which has in general been supported at a higher level in relation to foreign currencies than the rate that would exist under free trade. In interpreting the incentive indicators for agriculture, it should therefore be recognized that some positive effective protection might be offsetting the indirect disprotection resulting from the exchange rate overvaluation. Furthermore, negative protection indicators represent only part of the discrimination against a crop. But the extent of protection-induced exchange rate overvaluation varies from year to year.

The approximate exchange rate used to covert international reference prices into comparable domestic currency equilent can be the official exchange rate, provided there are no serious distortions in the foreign exchange market. But if there are sever controls on imports, and if the exchange rate of domestic currency is not market determined, as well as the case in India in 1980's, use of official exchange rate can lead to misleading interpretations of results. In this situation it is preferable to estimate and use a 'free market' or shadow exchange rate to convert international prices in to domestic currency¹⁹. Keeping in view that India also has started reforms its monetary policy in early 90's and devaluated the Indian currency after that the tendency of administered exchange rates has become to nearer the market exchange rates therefore the official exchange rates has been used in study. The exchange rates during the study period are given in Annexure -2.

3.17 Data Sources & Time Frame:

The study will contain both primary and secondary data. Primary data will be collected from the field on sample basis applied stratified purposive sampling method. Keeping in view the market arrivals, production, quality of wheat and rice (Fair and Average Quality-FAQ), distribution of land holdings four district-Ghaziabad, Varanasi, Bareli and Basti has been selected for the sample collection. Out of these four Gaziabad and Varanasi are wheat markets and Bareli and Basti are rice markets, which are located in different region of state. 50 observations, has been collected from each market from different strata of farmers (i.e. landless, marginal, medium and big farmers). Schedule used or primary data collection is attached as Annexure -4. Secondary data has been compiled from various agencies, institutions and government publications. The secondary data contained in this study will cover span of 20 years from 1985 to 2004, 10 year before and after the formation of WTO.

¹⁹ The shadow exchange rate is the rate that would prevail if exports and imports were open and the BoP current account cleared without any deficit.

Procurement price of different commodities has recommended by commission for agricultural cost and prices (CACP) which takes into account all important factors to ensure remunerative prices to the growers for their produce with a view to encourage higher investment and production, viz. cost of production, changes in input prices, trends in market prices, inter-crop price parity, international price situation, etc. The MSP has been compiled by Ministry of Agriculture's publication. The entire Farm Harvest Price related data has been compiled from "Farm Harvest Price of Principal Crops in India" published by Ministry of Agriculture, Government of India. Wholesale price considered here are month end wholesale prices prevailing in the market, which has been compiled by Center for Monitoring Indian Economy (CMIE), Mumbai. International prices and oceanic freight will be taken from Food and Agricultural Organization and UNCTAD series.

Gross Cropped Area (GCA), Area expansion, and other crop related data will be collected from Directorate of Economics & Statistics and Department of Agriculture, U.P. and also published by CMIE, Agriculture Statistics, Published by Government of India and various other secondary sources.

3.18 Methodological Gaps:

At the outset it is essential to underline the limitations of such exercise. For one it is always difficult to contemplate future in the world, where the degree of uncertainty is high and development are interdependent so that arguments are at best ex-hypothesis. For another methods of economic analysis are not versatile enough to capture consequences of change, this is so enamours that it may reshape the parameter. In the words, there are too many imponderables. But that is not all. There, are in addition some other complex practical and methodological constraints.

First to study, the changes in cropping pattern, cost of cultivation, causes of indebtedness, reasons for distress sell, factors affecting food security etc. altogether is a complicated task. One can not do justice to all these issues with

such limited resources and timeframe. Present study is just an effort to caress these issues. Therefore survey findings are simply indicative, demonstrating the present situation of state's agriculture and farming community.

Secondly, there were some methodological constraints, which compel to assume some ideal condition. For example Farm Harvest Prices and Minimum Support Prices are available from government publication, which is common for all places in Uttar Pradesh but Wholesale prices are different for different grain markets in U. P. Therefore, averages of main markets are adopted for the calculation of incentive indicators.

For reference prices, we define it as what the prices of the domestic varieties would have been during the same period under conditions of free trade at the same exchange rate. Estimating reference prices would be straightforward if there were substantial imports or exports of the same or a similar variety. In that case, provided there were no non-tariff controls, the tariff (or the export tax or subsidy in the case of exportables) after adjustment for domestic port, transport and marketing costs, would provide a reasonable first approximation of protection coefficients. Hence the price that Uttar Pradesh's farmer would receive under free trade depends on where his wheat would have to compete with foreign wheat under free trade. For this, some kind of geographical free trade scenario is needed which would indicate these points of competition. In my estimates it is generally assumed that under free trade import substitutes would compete with imports in the principal port cities, so that the reference price in the supplying region would be the landed price of the import in the port city *minus* marketing and transport costs to get the domestic product to the port.

In estimating protection coefficients under the exportable hypothesis, we have made various assumptions regarding the points of competition with similar foreign products. Assumption has been made that Uttar Pradesh wheat would compete with US wheat in deficit countries in North Africa, represented by Tunis. In this case, Tunis is roughly equidistant from India and the US, which

allowed us to assume that fob prices in India, would be the same as fob prices in the US. These estimates focus on the potential competitiveness of the surplus in India. Estimates of port costs -mainly the cost of unloading imports or loading exports, but also other expenses such as customs clearance and storage- are made on the basis of World Bank study (Gulati & Purcell 1998), which is not actual but simulated.

Moving commodities to be exported from port cities or to compete with imports there or elsewhere also involves marketing costs which include interest charges, handling expenses, storage charges, overhead expenses, miscellaneous expenses arising out of transit and storage losses, and wholesale distribution margins. These costs vary considerably by year, by season and by crop. In the case of both crop, the general treatment follows, that adopted in the World Bank study (Gulati & Purcell 1998). In particular, based on the study by Sharma and a review of a number of studies by Gulati et al (1990), in the case of foodgrains and oilseeds in the 1980s, I have taken marketing costs consisting of an interest charge for two months at an 18 percent rate applied to the price, plus Rs. 1 per quintal to represent other marketing expenses.

Estimating the EPC for a commodity requires information on the internationally tradable inputs used to produce it and estimate of the nominal protection of these inputs. For the principal cereals and some of the other crops, the shares of tradable inputs in the cost of production in each of the principal states are published in *Indian Agriculture in Brief*. For most crops it turned out that the principal tradable inputs are fertilizers, seeds and farm machinery. There are others also, but with some exceptions they did not constitute a large enough share of production costs for their protection rates to make a noticeable difference to the effective protection estimates. For example, we did not let the protection of pesticides used in producing rice and wheat. The shares of the major inputs in production costs varied from year to year. I calculated averages for a number of years, and used these averages in each year. For fertilizers, I

used nominal protection estimate done as part of the World Bank studies on wheat and rice and later extended by Ashok Gulati (Gulati, 1990). Tractors were the dominant component in the cost of farm machinery, and to represent farm machinery nominal protection, I used estimates of tractor nominal protection faced by farmers by G.D. Kalra and Ashok Gulati (1992). However I was unable to obtain data on the CIF prices of seeds, which were not available in order to estimate seed nominal protection, and assumed that seed nominal protection was the same as the nominal protection of the particular crop-method used in other studies (Purcell, Anju Gupta, Ashok Gulati etc.).

Thirdly, for analysis of trade competitiveness, so often the basis of conventional economic analysis is simply not valid for the theme of the study. This is partly because India's share in world output for many agricultural commodities is high but international marketable surplus is very low, and partly because a relatively small proportion of world output enters world trade in several agricultural commodities. Thus, how much India buy or sell in the world market would affect world price. Hence, world prices will not affect prices in India but Indian tradable surplus also will affect the world prices. To which extent this relation will work and how much they will affect each other, is not covered in present study.

Fourthly, any discussion in international trade in agriculture can not be confined to border measures that affect the movement of commodities across national boundaries. This is because domestic economic policies exercise a significant influence on output, prices and trade. Consequently it is difficult to disentangle the effects of trade policies from those of domestic police in the sphere of agriculture. Given these limitation it would be ideal to pretend that this study may provide a systematic analysis or a comprehensive discussion of the problem.

Chapter Four

Agricultural Profile of Uttar Pradesh

gricultural Profile of Uttar Pradesh

Uttar Pradesh is the most populous state of India. According to the 2001 census, U.P.'s population was about 166 million accounting for 16.4 percent of the country's population. This state however accounts for only 7.5 percent of the country's geographical area. As a result U.P. has a very high population density- 689 persons per square kilometer - which is more than twice of the national average i.e. 324 persons per square kilometer. Population of this state has increased almost three times since 1947, the year of India's independence. It is increasing at the rate of 2.3 percent annum during 1991-2000; a little higher than that of 1981-91 i.e. 2.2%. Thus U.P. is now adding about 3.8 million people per annum. If the population growth rate in the state continues at this current rate, in 30 years, U.P.'s population would be reaching to 340 million, approximately close to the population of the entire country after partition in 1947. Interestingly, if U.P. were to be a separate country, it would be the sixth most populous country in the world after China, India, United States, Indonesia and Brazil. The large population of such a size is a good in view of human resource, but at the same time it is a big problem if other resources are scarce. Uttar Pradesh is divided in 70 districts and four economic regions namely; Eastern, Western, Central and Bundelkhand. Out of these Eastern and Western regions are comparatively large and comprise 27 and 26 districts respectively, while Central and Bundelkhand region cover 10 and 7 districts respectively. U.P. is a landlocked state, mainly rural with an economy that is primarily agrarian. The industrialisation pattern in the state is highly skewed. Western region of the state has most of the industries of the state. The main agricultural crops in the state are wheat, rice, sugarcane, pulses and vegetables. The main industries in the state are cement, vegetable oils, textiles, leather, cotton yarn, sugar, jute, and carpet. The sectoral break-up of the state's Gross State

Domestic Product (GSDP) in 2002-03 was 32 percent from agriculture, 22 percent from industry, of which merely 11 percent came from manufacturing, and 41 percent from services.

4.1 Economic and Social Indicators:

U.P.'s population grew by of 25.8 percent between 1991 and 2001, above the national decadal average growth of 21.3 percent and marginally above U.P.'s previous decadal rate of 25.5 percent. U.P. is primarily rural, with an urbanization rate of about 21 percent in 2001. The net state domestic product NSDP of U.P. in 2001 was about 9 percent of India's total Net Domestic Product (NDP). Per capita NSDP was 5770 rupees, roughly 40 percent below the average per capita NDP of 9508 rupees for the same year. In 1999-2000, 31 percent residents of U.P. lived below official poverty line. This poverty ratio was the same for both rural and urban areas. U.P. is among the most backward states in India with high levels of poverty and low levels of social and economic development. If we compare inter regional growth; in all aspects of socio-economic indicators, Bundelkhand is the most backward region in state. UP's rapidly expanding population makes it more difficult for development gains to be felt in the state. India as a whole is experiencing rapid economic growth, with a decadal growth rate of 6.2 percent between 1992 and 2002, and this has certainly helped to reduce the country's official poverty ratio from 37.1 percent in 1990-91 to 26.1 percent in 1999-00²⁰.

Decline in poverty levels coincided with, inter alia; increased agricultural production. It indicates that high agricultural growth has positive bearings on poverty in state. U.P. experienced the increased agricultural productivity during the Green Revolution, when High Yielding Verities (HYVs) of such were introduced in western U.P. and the following decades, when the new technology spread to the eastern part of the state.

²⁰ GoI (2002-03)

Literacy rate in U.P. is not much encouraging. Merely 57 percent of the population of U.P. was literate in 2001 (RGI, 2001). Within U.P., literacy rates were higher in urban areas than in rural ones, i.e. at about 71 percent and 54 percent. Women in U.P. are about 40 percent less likely to be literate than men. In 2001, there was 70 percent literacy for males and 43 percent for females. Disparities in literacy rates can also be seen between and within scheduled castes and tribes (SC and ST). Literacy rate for SC in 1991 was 28 percent and within that, the literacy rate for females was only 11 percent, where as about 41 percent literacy rate for SC males. The literacy rate for ST was 36 percent, male 50 percent and female literacy rate of 20 percent²¹. In a globalised economy, where knowledge is a key factor for growth, level of literacy reflects as to how low literacy rate is a major hurdle for the development of state.

Status of basic infrastructure in U.P. is also poor in comparison to national average and that of other Indian states. In 2002, U.P. had a total of 248,481 km. of roads, of which 67 percent were surfaced. This is a dramatic increase in the proportion of surfaced to un-surfaced roads in 1998, which was about 44 percent. At the same time though, the total road network in U.P. actually decreased by 11 percent between 1998 and 2002 and the increase in surfaced roads between those years was about 6 percent²². Electricity consumption per capita in U.P. in 2002-03 was only 175.80 kWh, which was almost 80 percent less than the per capita consumption in Punjab of 837 kWh, which is another leading green revolution state²³. In terms of water and sanitation, about 33 percent of households in U.P. had access to toilet facilities in 1997, while the India average was 49 percent. About 62 percent of households had access to safe drinking water, the same as the all-India average²⁴.

²¹ RGI, (1991)

²² GOI, (2002)

²³ Indian Infrastructure, (2003)

²⁴ Statistical Diary, Various Issues

4.2 Land Availability and Land Use Pattern:

UP has a land area of 240,928 sq. km. after the carving out of Uttaranchal in the year 2001. Over two-thirds of the state falls in the Gangetic Plain region, which is subdivided into the western, central and eastern areas, because of their differing historical and economic backgrounds²⁵. In 2001, over three quarters of districts were located in Eastern and Western U.P. Western U.P. and eastern U.P.'s land areas are about 89,589 square km and 87,294 square km, respectively.

Fertile Gangetic plain in U.P. is characterized by alluvial soil and is intensively cultivated. Perennial Ganga and Yamuna Rivers, rising from the Himalayas traverse almost parallel to each other through the state until they join in Allahabad, in the southeast. The plain is also watered by the major tributaries of the Ganga and Yamuna, namely the Ramganga, Gomti, Ghagra, Saryu and Gandak²⁶. This makes soil very fertile for agricultural purposes. But the Bundelkhand region is quite different in this regard and deprived from this natural advantage.

Although eastern and western U.P. both parts of the Gangetic plain comprising of the two regions are interestingly distinct from one another. Eastern U.P. is flood prone, less developed than the west, and experiences periodic occurrences of droughts. It has higher amounts of rainfall than its western counterpart, and in many areas lacks the capacity to cope with excess water via drainage systems. In 1999-00, less than 1 percent of *kharif* area was affected by floods in the west, while 8.5 percent was affected in the east. Frequent floods in eastern U.P. can be largely attributed to deforestation in the upper catchment areas, leading to soil erosion and riverbed silting²⁷. Water logging in these areas during rainy season affects sowing and crop yields.

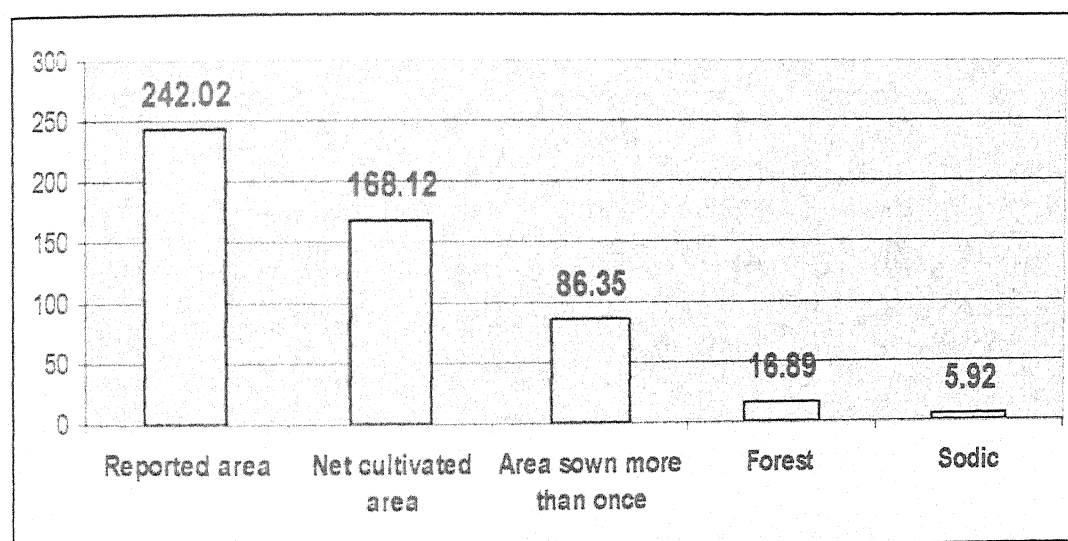
²⁵ Sharma (1993), and Poleman, (1993)

²⁶ Pant, (2003)

²⁷ Sharma (1993), and Poleman (1993)

These variations in natural resource endowment lead the difference in land use pattern across the state among different regions. The total reported area in Uttar Pradesh is 242.02 lakh hectares. The Net Cultivated Area in Uttar Pradesh is 168.12 lakh, which is 69.47 percent of total reported area. It means that more than two third reported area is available for cultivation. But agriculture can not be performed without irrigation the most indispensable input for farming. The area sown more than once in U.P. is only 51.5 percent (36.68 of total reported area); it implies that half of the cultivated area does not have the proper irrigation facility.

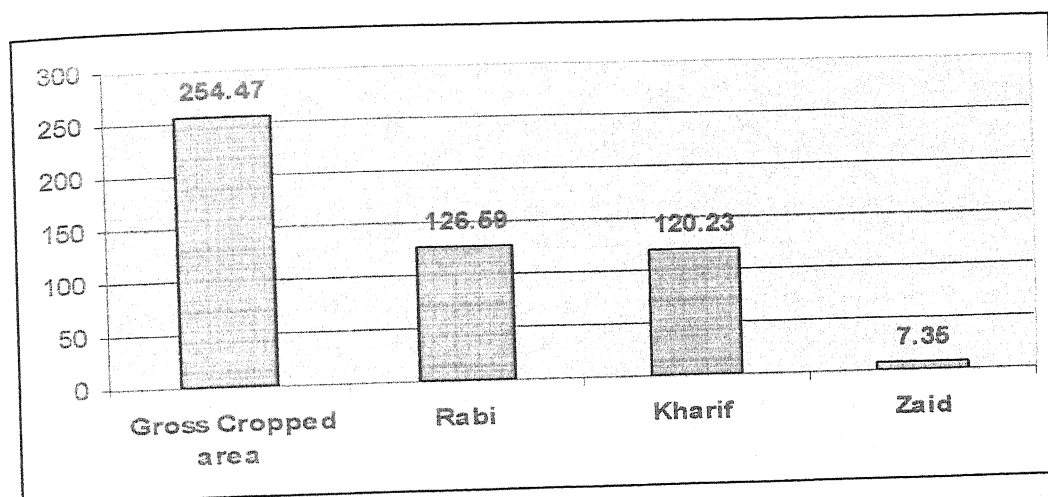
Figure-4.1: Land Utilisation in Uttar Pradesh (Area in Lakh ha.)



Source: U.P. Statistical Diary

Eastern U.P. has the largest reporting area for agriculture, land under forest and land under non-agricultural uses; while Bundelkhand has the lowest reporting area for agriculture, after Central U.P. But the lead of Eastern U.P. end here, among the all four regions Western U.P. has largest net sown area and area sown more than once, Central U.P. has second place in net sown area and area sown more than once. Land utilisation also has a different pattern among the different region as it can be seen in figure below.

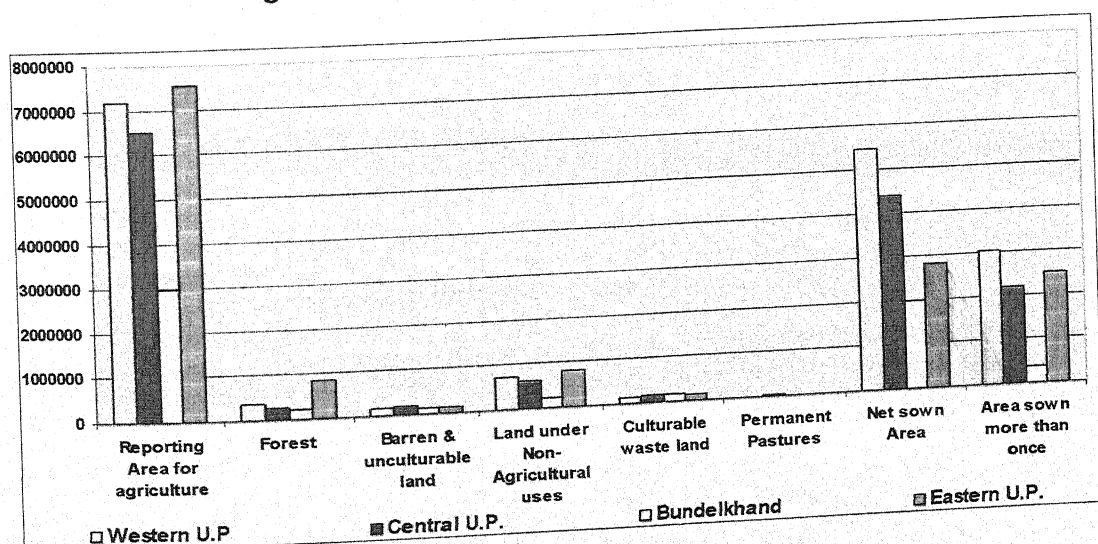
Figure-4.2: Land Utilisation for Agricultural Purposes in Uttar Pradesh
(Area in Lakh ha.)



Source: U.P. Statistical Diary

Percentage distribution of operational landholding in India suggests that number and area under small and marginal farmers has consistently increases in India as well as in Uttar Pradesh. Number of landholding cultivated by small and marginal farmers has increased from 73.8 thousand in 1990-91 to 75.6 in 1995-96. While area under large farms (more than 2.5 Acre) has decreased with number of large operational holdings in state.

Figure-4.3: Region-Wise Land Utilisation (ha.)



Source: U.P. Statistical Diary

Table-4.1 Distribution of Operational Holdings

Size of Holdings (Acre)	India				Uttar Pradesh			
	Number ('000)		Area (lakh ha.)		Number ('000)		Area (lakh ha.)	
	1990-91	1995-96	1990-91	1995-96	1990-91	1995-96	1990-91	1995-96
>2.5	59	59.4	14.9	15.1	73.8	75.6	31.4	34.1
2.5-5.0	19	18.8	17.3	17.4	14.5	14.5	24.4	23.8
5.0-10	13.2	13.1	23.2	23.2	7.3	7.3	23	23.1
10-25.0	7.2	7.1	27.2	27	2.4	2.4	16.9	15.8
Above 25.0	1.6	1.6	17.4	17.3	0.2	0.2	3.9	3.2

Source: Diwakar (2006)

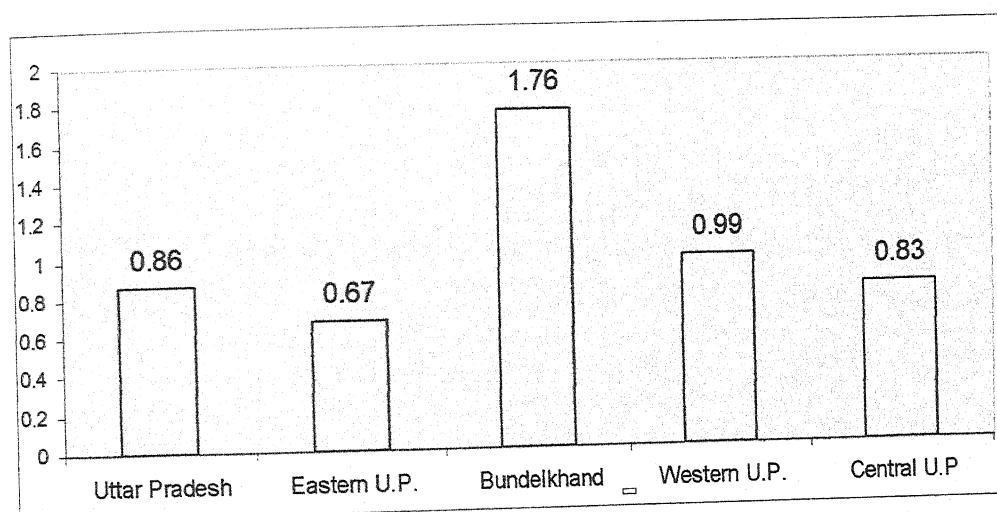
Given that the total Net Cultivated Area in Uttar Pradesh is 168.12 lakh ha., which is only 69.47 percent of total reported area and a large number of population in state is dependant on agriculture therefore average size of holding in state is very small (0.83 ha.). Almost 91 percent farmers in Uttar Pradesh belong to small (14.25%) and marginal (76.88%) section. These farmers are farming on 61.25 percent cultivated area. The share of big farmers (farm larger than 10 ha.) in state is only 0.15 percent and share of land under big farms is only 2.69 percent. Rest 8.72 percent farmers are from semi medium (06.58%) and medium (02.14%) category.

Table-4.2: Category of Farmers in Uttar Pradesh

Category of Farmers	Area (in '000 ha.)	No. in '000" & %	Average Holding size
Marginal (<1 ha.)	6648 (36.97%)	16659 (76.88%)	0.4
Small (1-2 ha.)	4366 (24.28%)	3087 (14.25%)	1.41
Semi Medium (2-4 ha.)	3905 (21.72%)	1427 (06.58%)	2.74
Medium (4-10 ha.)	2580 (14.35%)	463 (02.14%)	5.57
Big (>10 ha.)	484 (02.69%)	32 (00.15%)	15.07
Total	17983 (100%)	21668 (100.00%)	0.83

Historically, all the four regions of U.P. had different systems of landholdings, and although land reforms have been put in place, eastern U.P. still has a highest share (79 percent) of marginal land holdings. It is 62 percent, 64 percent and 69 percent in Western U.P., Central U.P. and Bundelkhand respectively. Under British rule, the Zamindari system of tenancy in eastern U.P. estranged cultivators from the land, as it further stratified rural society into layers of tenants, subtenants and rentier landlords.

Figure-4.4: Region-Wise Average Size of Land Holdings (ha.)



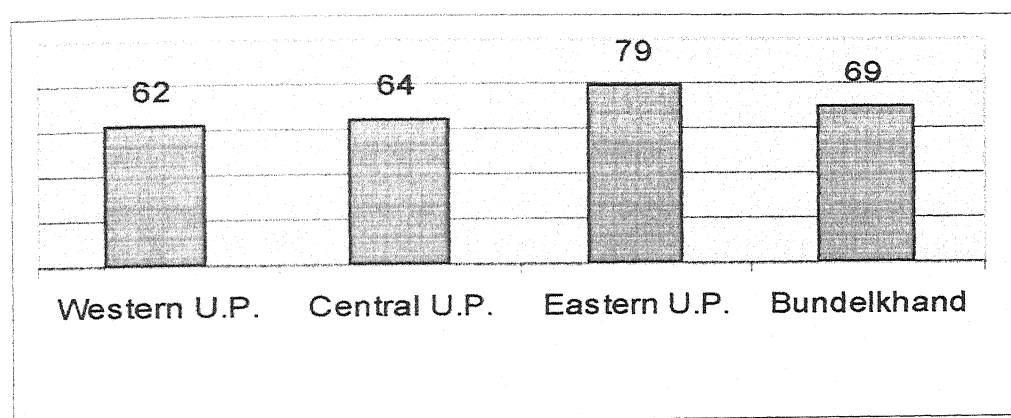
In western U.P., the bhaichara system allowed for peasant proprietorship, which gave tenants a greater incentive to invest in land and improve productivity, as is reflected by changes in cropping patterns, increases in yield and capital accumulation²⁸. In 1960-61, marginal land holdings (<1 hectare) made up over 52 percent of land holdings in western U.P. in about 11 percent of operational agricultural area. At the same time in eastern U.P., 62 percent of land holdings were marginal, and they were contained in about 19 percent of agricultural area.

By 1980-81, the share of marginal holdings increased in the west to 62 percent in about 20 percent of agricultural area, and in the east marginal holdings increased to 79 percent of agricultural area. In 1995-96, the proportion of

²⁸ Stokes, (1978)

marginal holdings U.P.-wide was about 75 percent and they operated in about one third of the state's operational agricultural area²⁹. In the eastern and central regions of U.P., more so than in the western region, land is predominantly owned by high-ranking castes³⁰. At present Bundelkhand has the comparatively bigger land size, but there are agro-climatic and fertility factors also behind the low production and productivity in agriculture of the region.

Figure-4.5: Region-Wise Average percentage of Marginal Holdings (ha.)



4.3 Agricultural Growth in Uttar Pradesh:

Agricultural growth rate accelerated in India after Independence, from a rate of less than 0.8 percent per year in the first half of the 20th Century to 2.7 percent per year. Development of infrastructure overtime, such as irrigation, roads, power and agricultural research and development and extension services has played a vital role in agricultural growth.

The Green Revolution followed by introduction of HYVs of wheat and rice in the late 1960s and early 1970s began in Uttar Pradesh with Punjab and Haryana. Gains in agricultural production that went along with the introduction of new technology lifted India from the status of a food deficient country to a self sufficient one. Clearly, after a certain point, there is no way to increase land

²⁹ CMIE, (2004)

³⁰ Dreze and Gazdar, (199)

area under cultivation. Seed-fertilizer technology that came about via agricultural research and development made it possible to increase yields and use existing land more efficiently. Increase in yields and agricultural productivity in rural areas has translated into development gains for the rural poor. This higher agricultural yield reduced rural poverty³¹. While higher agricultural wages and yields both diminished poverty with roughly the same elasticity, the gains to the poor from higher yields reached beyond those near poverty line. Rural poverty levels³², have been decreasing over time in Punjab and Haryana — two states where yield levels have been consistently higher than that of U.P. and most of other major states. Incidence of official rural poverty in these states is among the lowest in India, at 6.35 and 8.27 percent, respectively, in 1999-00. It is significant that investment in agricultural Research and Development is among the most effective instruments for reducing rural poverty. Currently, the Indian government spends less than 0.35 percent of agricultural GDP on agricultural R&D³³. The HYV seeds grown in the Green Revolution states require more water than traditional seeds, it is possible that irrigation plays an even greater role there than in the India-wide. The role of soil conservation is gaining importance, as the loss of macro nutrients in soil has led to a slowing in yield growth, particularly in western UP.

Introduction of new technologies leads the change in cropping pattern. However cropping patterns are largely determined by natural physical conditions, such as soil type, climate, rainfall patterns, elevation and topography³⁴. In each region, the combinations of crops grown are inter alia decided by relative prices and yield levels. New technologies, such as HYV seeds, can work with relative price levels to change cropping patterns. The role of inputs, such as investment in irrigation infrastructure - tube-wells, or the

³¹ Datt and Ravallion, (1998)

³² Bajpai (2005)

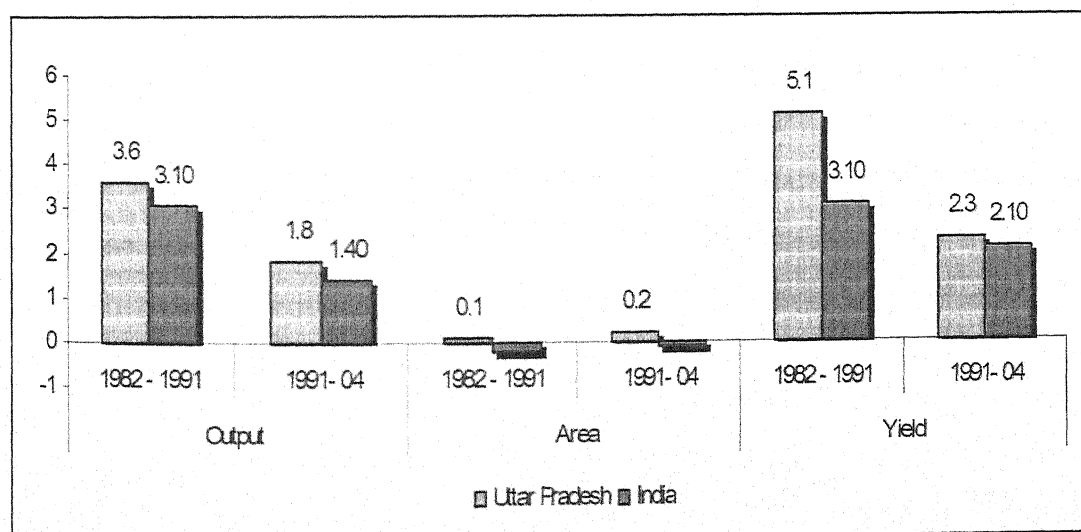
³³ Gol, (2004)

³⁴ Bhalla and Singh, (2001)

additional use of fertilizers and new seeds, make it possible to raise yield levels (Rs/ha)³⁵. This highlights the importance of modern inputs and their role in raising value productivity by raising physical yield and also by bringing about changes in cropping patterns.

The annual compound rates of yield growth, with the introduction of the new seed technology in U.P. during this period were higher than the national average, 1.8 percent. Similarly, the annual compound growth rate of output for India at this time was 2.1 percent, while in U.P., output growth was recorded above the national average at 2.5 percent, respectively. While U.P. registered lower rates of growth in terms of yield and output than Haryana and Punjab in this period. This yield and output changes in later periods, as described below. India-wide higher yield growth levels were seen between 1970-73 and 1980-83, as HYV wheat, along with the introduction of HYV IR8 rice, continued to spread in the northwest. Wheat and rice technology spread to hitherto lagging eastern U.P. during this period and advances in rice technology spread southward as well.

Figure-4.6: Output, Area and Yield in U.P. and India



Source: Uttar Pradesh Statistical Diary, Various Issues

³⁵ Bhalla and Singh, (2001)

The all-India compound growth rate of yield (Rs/ha) per annum in the 80's was 1.8 percent, up from 1.64 percent in the previous time period and the annual compound growth rate of average value of output (Rs) was 2.4 percent, up from 2.1 percent in the previous time period³⁶. It can be seen in figure-1 below that output, area and yield has been declined in the period 1991-2004 in comparison to 1982-1991 in U.P. as well as in India.

The most dramatic change in agricultural growth in India was registered in the 1992-95 over 1980-83 periods. Compound growth rate of yield/ha for all-India increased from 1.8 percent per annum to 3.1 percent per annum, and the compound growth rate of output for all-India increased from 2.4 percent per annum to 3.4 percent per annum. U.P.'s yield growth during this time was 3.39 percent per year, up over a percentage point from 2.4 percent per year, and its rate of output grew at an average of 2.8 percent per year, up marginally from 2.7 per year. This growth was a sign of the new seed technologies further taking deeper root in the east, as output in eastern districts increased during this period. In U.P., there were slight increases in percentage shares of rice and wheat, from 20.3 to 22.3 percent in rice and from 31.1 to 36.5 percent in wheat.

Area Production and Productivity in Major Crops:

Growth in output levels can be largely attributed to the use of HYV seeds and modern inputs such as fertilizer, rather than to an increase in area under crops. Between 1962-65 and 1992-95, all-India annual compound growth rate in net sown area was less than half a percent. In U.P. the compound growth rate of net sown area was -0.01 percent. While growth rates in terms of yield and output continued to increase in the three time periods (1962-65 to 1970-73; 1970-73 to 1980-83; 1980-83 to 1992-95) in UP. Annual compound growth rate in output during 1980-95 was 2.7 percent in UP³⁷. In absolute terms, average value of yield was about 3970 Rs/ha in U.P.'s. By 1992-95, the average value of yield in U.P. became 10,128 Rs/ha.

³⁶ Bhalla and Singh, (2001)

³⁷ Bhalla and Singh, (2001)

Average annual growth rate in area, production and productivity has increased for the period of 1970-71 to 1990-91 compared to average annual growth rate from 1950-51 to 1970-71. But there is sharp decline in production and productivity for the period 1991-2001. Total area under food crops has shows negative growth (-0.14) in this period.

Table-4.3 Average Annual Growth Rate Food and Non Food Crop

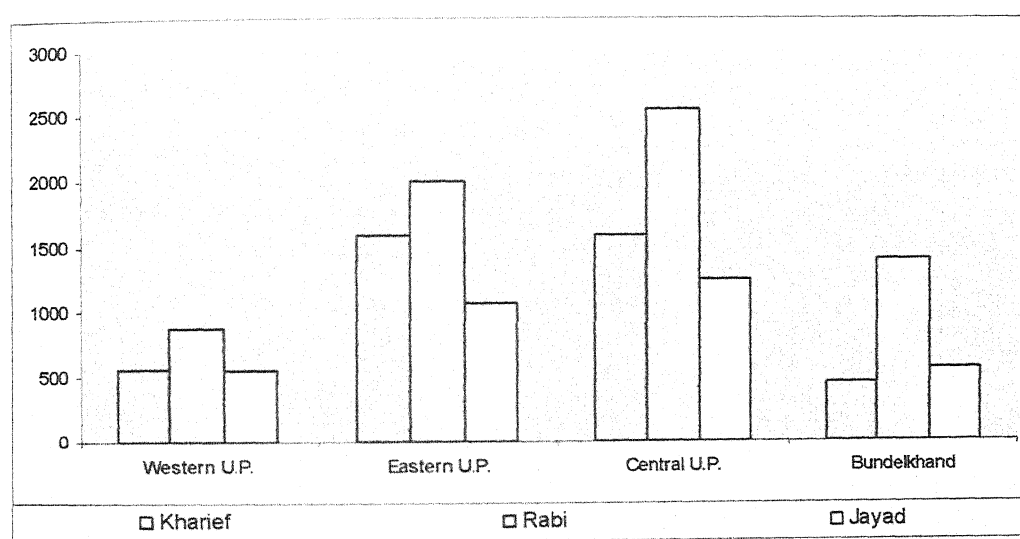
Period	Average Annual Growth Rate (percent)		
	Area	Production	Productivity
Food Crop			
1950-51 to 1970-71	0.65	2.55	0.95
1970-71 to 1990-91	0.23	3.05	2.88
1990-91 to 2000-01	(-) 0.14	1.78	1.91
1950-51 to 2000-01	0.33	2.59	2.26
Non Food Crop			
1950-51 to 1970-71	2.19	3.16	1.88
1970-71 to 1990-91	1.77	3.43	2.82
1990-91 to 2000-01	3.03	0.65	(-) 0.38
1950-51 to 2000-01	1.69	2.77	1.07
All Crop			
1950-51 to 1970-71	0.79	3	1.18
1970-71 to 1990-91	0.42	3.33	2.85
1990-91 to 2000-01	(-) 0.07	2.1	1.16
1950-51 to 2000-01	0.47	2.72	2.2

Source: Diwakar (2006)

In the benchmark triennium of 1962-65, U.P.'s average value of output (Rs 93.6 billion) was about 82.5 percent higher than Haryana's (Rs 16.3 billion) and 76 percent higher than Punjab's (Rs 22 billion), which roughly coincides with U.P.'s larger net sown area and shows that initially, U.P. may have had a slight advantage over least on par with western U.P. as far as rice was concerned, as water conditions (flooding) in that part of the state especially in eastern U.P.

made it naturally suitable for growing rice. Since the HYVs of wheat were introduced mainly in the western part of U.P. during this period, this may explain part of the decrease in output value, relative to Punjab and Haryana. Although technology was spreading in eastern U.P. and the compound growth rate of output accelerated in U.P. in the 1980-83 over 1970-73 period. There are significant difference of yield (kg./ha.) different in Uttar Pradesh as it can be seen in figure below.

Figure-4.7: Cereal Yield (kg./ha.) in Different Regions



The value of yield of some major crops in Uttar Pradesh in rupees per hectare is lower than that of Punjab and Haryana, while U.P. has been India's largest producer of wheat, followed by Punjab and Haryana, since the early 1970's, its yield in terms of kg per hectare has been consistently lower than its western neighbours'. In 2001-02, U.P. produced almost 35 percent of the country's wheat, 24.9 million tons, followed by Punjab at 21.6 percent and Haryana at 13.1 percent. In 1972-73, U.P. produced 28.4 percent of the country's wheat, or 7 million tons, in an area of 5.7 million hectares, with a yield of 1229 kg/ha. In 2001-02, U.P. cultivated wheat in an area of about 9 million hectares and produced 2760 kg/ha. with a yield of 2760 kg/ha..

Since 1972-73, U.P. has increased the land area under wheat production by approximately 37 percent. U.P.'s yield grew in this period from 1229 kg/ha in 1972-73 to 2760 kg/ha in 2001-02, or by about 55 percent. The quality of wheat produced in the states, and regions within the states, is also likely to differ and prices may reflect this. It is clear, though, that U.P.'s initial lower yield in wheat as measured in kg/ha has persisted over time, and while its improvements are impressive.

By and large Uttar Pradesh is among the largest producer of foodgrains and cereals since last decades. Along with its status of top producer of wheat in India, U.P. is the second-largest producer of rice in the country between West Bengal and Punjab, which are the first and third largest producers. Similar to U.P.'s low yield per hectare of wheat and other crops, the state makes up in area what it lacks in yield to become one of the country's top producers. In 2001-02, U.P. produced 13.4 percent of the country's rice, or 12.5 million tons, with a yield of 2120 kg/ha in an area of about 5.9 million hectares. As with wheat and other crops, rice yield (kg/ha) has been increasing over time. Between 1972-73 and 1984-85, rice yields (kg/ha) in U.P. increased by 44 percent, from 712 kg/ha to 1275 kg/ha, and between 1984-85 and 2001-02, they increased by about 40 percent to 2120 kg/ha. Over the entire period, U.P.'s rice yields increased by about 66 percent.

In the west, the most significant change in cropping patterns was seen between 1964-65 and 1970-71, with the introduction of HYV wheat. Between these years, the proportion of gross cropped area under wheat increased from 21.6 percent to 31.6 percent. Similar to the situation in the east, area under rice cultivation increased slightly between 1964-65 and 1985-86. As in the east, share of pulses and coarse cereals declined, as *Rabi* pulses and oilseeds compete with wheat³⁸.

In terms of cash crops, U.P. is the top most producer of sugarcane, contributing almost 40 percent, or 116 million tons to India's overall sugarcane production in

³⁸ Sharma (1993), and Poleman (1993)

2001-02, and the second-largest producer of vegetables, roots and tubers, contributing about 14 percent, or 13 million tons, to India's overall production in 2000-01. The proportion of gross cropped area under sugarcane has changed little since the 1960s, as its presence has increased from 5.48 percent to 7.63 percent overall in U.P. Within the west, in 1960-61, the area under sugarcane was 10.4 percent of gross cropped area and this fluctuated slightly until 1985-86, when it was 10.3 percent. In the east, area under sugarcane in 1960-61 was 4.4 percent and, after several fluctuations, the proportion of area under sugarcane in 1985-86 in the east was 3.3 percent. Owing its agro-climatic situation, Bundelkhand didn't see any significant change in cropping pattern with green revolution and agriculture remains a means for livelihood in the region.

Table-4.4: U.P.'s Position in Agricultural Production

Crops	Year 2003-04		Contribution in percentage	Rank
	India	U.P.		
Rice	883	130	15	2 nd
Wheat	721	256	35	1 st
Food Grains	2135	443	21	1 st
Pulses	149	24	16	2 nd
Oil Seeds	253	9	4	9 th
Sugar Cane	2373	1128	48	1 st
Potato	233	88	38	1 st
Vegetables	1014	158	16	1 st
Fruits	493	29	6	6 th

Source: UPCAR

As described above U.P. is among the most backward states in India in terms of socioeconomic indicators. While Punjab, Haryana and western U.P. were at the forefront of the Green Revolution and eastern U.P. joined later with the introduction of HYV rice, large interstate disparities persist between U.P. and

the other Green Revolution states in terms of agricultural production and output, largely as a result of lack of infrastructure, especially irrigation, in U.P.

4.4 Input Use Pattern and Inter-Regional Variations in Uttar Pradesh:

4.4.1 Irrigation:

One of the main requirements for the HYV seeds that sparked the Green Revolution is assured and timely irrigation. In the pre-Green Revolution period (1962-65), the proportion of gross cropped area under irrigation was about 27 percent. By 1980-83, the proportion of gross cropped area under irrigation had increased significantly in U.P. to 47.5 percent.

Historically, one of the greatest advantages that western U.P. had over other regions was public investment in canal irrigation since the British colonial regime. In 1950-51, the land area watered by canal irrigation in the west was 12 times greater than in the east. The development of the Sharda Sahayak and Gandak irrigation projects improved canal irrigation in the east and the ratio of canal irrigated area between east and west has decreased and it becomes almost equal. Bundelkhand region has the smallest amount of canal irrigation facility. By the time the east caught up to the west in this regard, the expansion of tube-wells – seen as a necessity for the timely irrigation for the new HYVs— had taken off in the west³⁹ and canal irrigation was no longer the preferred mode of irrigation. The east again found itself behind the west in this form of irrigation. In 2001-02, the proportion of net irrigated area watered by canals was significantly higher in the east than in the west. Bundelkhand region was highly dependent on government tube-wells for irrigation due to socio-economic reasons. Therefore sharp decline in public investment has affected the net irrigated area in Bundelkhand.

At the beginning of the Green Revolution, the Eastern and Western region had roughly the same amount of irrigated area, but the difference between them was that over 90 percent of land under irrigation in the east was watered from

³⁹ Sharma (1993), and Poleman (1993)

wells, ponds and tanks, while over 50 percent of land under irrigation in the western and central U.P. received water via canal irrigation. Over time, not only has the net irrigated area as a percentage of net cropped area grown to a greater extent in the west than in the others. Bundelkhand had a late start in terms of irrigation and still lagged behind in this regard, that government intervention and private enterprise in exploiting water resources had led to a marked improvement in irrigation but it can not be carried out due to deficiency of private investment in this region.

The difference in public and private investment can be seen in gross irrigated area in these regions as the western U.P. highest gross irrigated area (46 percent) followed by eastern U.P. and central U.P. with 30 percent and 18 percent respectively, while Bundelkhand has only 5 percent gross irrigated area of its total cultivable land. Within U.P., the development of irrigation infrastructure in the East has been slower than in the West. Canal irrigation had been developed in U.P. prior to the Green Revolution and this irrigation infrastructure was a major factor in the introduction of HYVs in that region. Canal irrigation was an improvement over more traditional, labour-intensive forms of irrigation, like the Persian wheel. With the introduction of HYVs, irrigation via tube-wells, which provide assured and timely irrigation for the seeds, experienced rapid growth.

In the pre-Green Revolution period (1962-65), the number of pump sets per 1000 hectares of net sown area in U.P. was about 1.5. Between 1962-65 and 1980-83, there was tremendous growth in pump sets in U.P. as their number increased to 64 per 1000 hectares of net sown area. The number of pump sets increased by 67 percent, from 64 to 95. Between 1987 and 1992, in U.P. the number of pump sets increased by about 28 percent, from 95 to 132⁴⁰. In 1986-87, diesel pump sets outnumbered electric pump sets by an order of about 4. Reliance on diesel versus electric power, or vice-versa, can partly be seen as a reflection of availability and level of subsidisation of diesel fuel and the

⁴⁰ Bajpai (2005)

availability of electricity. In 2001, the number of electric pump sets per 1000 hectares of net sown area in U.P. was 50.

While the East receives higher levels of rainfall than the West, the Western region has been able to rely on, to a much greater extent than in the East on irrigation in the form of canal networks and the development of its groundwater resources. Not only can flooding, which is seen more in the Eastern Region, damage and/or destroy crops and waterlog swathes of land, but this problem makes it more difficult for farmers to effectively use fertilizers, as floods can easily wash away an application of fertilizers, leaving a farmer and his land without the benefits of his investment of this input. Bundelkhand region also faces similar kind of situation of non-proportional uses of fertilizers. This can lessen the incentive for farmers to invest in fertilizers in Bundelkhand. Additionally, fertilizers that are washed off the land can lead to contamination of rivers and water sources, creating a host of environmental problems.

Therefore there is a pressing need for effective water management and also the conjunctive use of ground and surface water for irrigation, but there has been no such strategy put in place in the state's plan for agricultural development. While it has been argued that HYV crops need timely and assured irrigation provided by tube-wells or otherwise, it is possible that with further research and effective harnessing of surface water, a combination of irrigation via ground and surface water could be administered. If there were a shift in yield measurements, from the concept of yield per unit of land to yield per unit of water, appropriate cropping patterns could emerge⁴¹.

4.4.2 Fertilizers:

Consumption of fertilizers was almost 2 kg per hectare in U.P. in the early to mid-1960s. Between 1962-65 and 1980-83, fertilizer consumption increased by about 95 percent in U.P., to just over 75 kg per hectare. Between 1980-83 and 1992-95, U.P.'s fertilizer consumption grew by 44 percent. Fertilizer

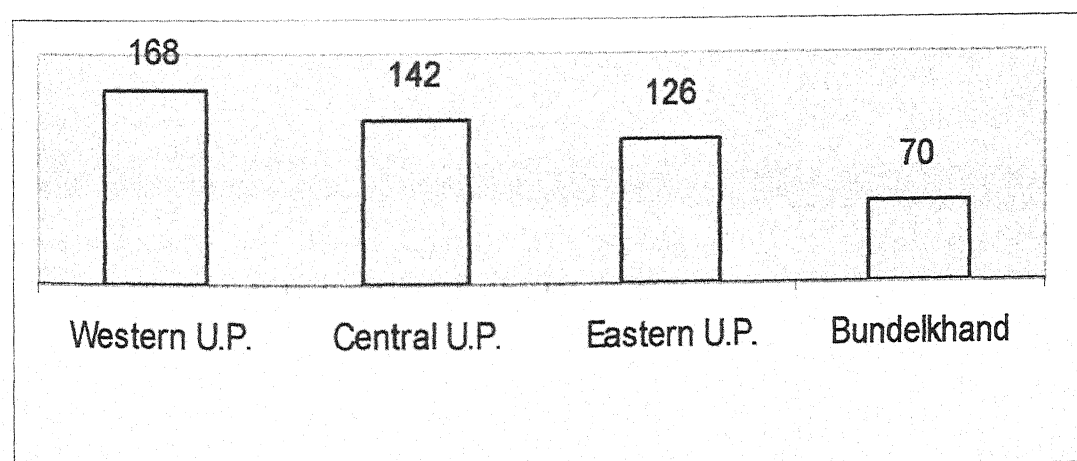
⁴¹ Pant (2003)

consumption in Uttar Pradesh has increased along with the increase in irrigation. But compound annual growth rate of fertilizer consumption has declined from 6.72 % in 1980s to 3.8 % in 1990s⁴².

Virtual use of N:P:K is disproportionate in India. The ideal proportion of N:P:K composition is 8:2:1, which was 8.5:3.1:1 in 1998-99. While in Uttar Pradesh it is highly inconsistent. It was 25:8:1 in 2001-02. Regional variation in N:P:K use is more uneven. It was 27:5.5:1 and 20:6:1 in Eastern and western U.P. respectively. This proportion for was 42:15:1 Central U.P. and 431:280:1 for Bundelkhand⁴³. There are huge intrastate differences in UP in infrastructure, production and productivity of different crops. Fertilizer consumption has been traditionally higher in the west than in the east, and over time, the gap, which was quite narrow in 1965-66, has been widening.

In 2001-02, fertilizer consumption per gross cropped hectare was highest in the West with 168 kg/ha and in the east it was 126 kg/ha. Central U.P. was in the middle of both, where fertilizer consumption was 142 Kg./ha. Here again Bundelkhand was lagging with consumption of only 70 Kg./ha. lowest among all the regions.

Figure-4.8: Region-Wise Average Fertilizer Consumption (kg/ha)



⁴² Statistical Diary, Various Issues

⁴³ Diwakar, (2006)

4.4.3 Electricity:

Agricultural consumption of electricity as a proportion of total state electricity consumption was 21.5 percent in UP. A higher proportion of villages are electrified in the central and west U.P. than in the east and Bundelkhand. Agricultural consumption of electricity as a proportion of total consumption is greater in central and western U.P. than in eastern U.P. and Bundelkhand. Not only can electricity be a constraint in irrigation, but so can the most important part of the irrigation equation: water. Ground water is drawn from aquifers, whose rates of recharge are much lower than rates of withdrawal. In U.P., much of the western region is experiencing a fast depletion of groundwater, while areas in eastern U.P. remain waterlogged.

4.4.4 Credit:

The importance of Credit as an input has been increasing with the advent of new technology and seeds. The annual average compound growth rate of per capita credit to agriculture was 16.01 percent in 1980s. It has been decelerated to 8.3 percent in 1990s. There had always been shortfall in achievement with respect to target⁴⁴. During Rabi season 2003-04, crop loan worth Rs. 699.21 crore were distributed by cooperative banks, which was 80 percent of the target of Rs. 875 crore. To facilitate farmers with better credit, Cooperative and Commercial Banks have introduced Kisan Credit Card. During 2002-03, Rs. 32 lakh was distributed against target of Rs. 35 lakh, which was subsequently reduced to Rs. 27.23 lakh against Rs. 35 lakh in 2003-04 this has further reduced to Rs. 15.56 lakh against 25 lakh until November 2004.

Credit deposit ratio and number of scheduled commercial banks (per 1000 people) were almost same in 1998-99. The main differences in terms of credit facilities between east and west was seen in the number of cooperative agricultural marketing canters, as there were 3.1 (per 1000 people) in the West

⁴⁴ Diwakar, (2006)

in 1999-2000, while there were 2 in Central U.P. and 1.8 in the East, while it was only 0.6 in Bundelkhand. Cooperative marketing societies and joint agricultural cooperative societies were slightly more prevalent in the west than in the east for same year.

4.5 Farmers Access to Basic Resources:

Empirical analysis reveals the fact that technical variables, such as use of fertilizers, irrigation, and HYV seeds or environmental variables, such as rainfall, soil fertility and economic variables, such as size of land holdings, size of the markets, and availability of power for agricultural use are all significant variables for the determination of agricultural performance⁴⁵. The extent of variation in agricultural output is, to a large extent, explained by the use of inputs for modern agriculture. However, if one were to single out the most significant variable, from the ones listed above to explain the intrastate differential agricultural performance of U.P. is irrigation. Almost a quarter of the total net sown area of U.P. is without irrigation and there are huge differences in inter-region net sown area. Western U.P. has lead with highest 83.85 percent net sown area, followed by Central U.P. (71.69 percent) and eastern U.P. (38.82 percent). Bundelkhand region is again a backward region in this regard, which has 39.31 percent net sown area. Other variables that seem to make a difference are parts of rural infrastructure, such as availability of reliable power supply, and roads to the regional markets. There are a small number of farmers in state who has an appropriate availability to agricultural input and other related services in their own village.

Over time, the agricultural performance seems to have been impacted by the level of public investment in the agricultural sector. Successive governments in the states of Punjab and Haryana; the other two green revolution states, since the pre-Green Revolution days had invested heavily in the rural infrastructure - roads, power, and irrigation networks and especially in the case of Punjab in

⁴⁵ Bhalla and Singh, (2001)

agricultural R&D in the early green revolution period⁴⁶. It is important to highlight here the role played by the Punjab Agricultural University in adapting the HYV seeds of Mexican wheat and Philippine rice to suit the local soil and climatic conditions of the region. Punjab has succeeded to develop composite seeds and farming practices that can perform better in given agro-climatic zone. Public investment in agricultural Research and Development has, and will continue to play, a very significant role in the years ahead.

This is certainly in stark contrast to the level of public investments made by the authorities in U.P. In this backdrop, Punjab and Haryana with their large tracts of very fertile alluvial soil were the ideal candidates to succeed in raising their agricultural productivity with the introduction of the HYV wheat seeds to begin with in the mid- 1960s, followed by the HYV rice seeds in the early 1970s. The literature that focuses on analyzing the agricultural performance during the Green Revolution period is strongly suggestive of the fact that it is basically the level and composition of public investment that has determined the agricultural performance especially in canal and tube well irrigation, soil fertility, R&D, and initial endowments. In the subsequent period, however, inputs seem to have been concentrated in the high fertility and high income areas.

With regard to U.P., during the initial Green Revolution period, it was only the western region of the state that could make good use of HYV seeds as this region was, relative to other parts of the state, in better shape as far as irrigation, and to a lesser extent as far as roads and power availability were concerned. Over time, eastern U.P. has made strides to help narrow the gap with its central and western counterpart but Bundelkhand region was failed to tally with other regions. Eastern region has significantly stepped up irrigation infrastructure and improved crop yields, both in terms of value (rupees per hectare) and physical yield (kg. per hectare). This has played a key role in the

⁴⁶ Roul, (2001)

growth of agricultural output in the east, as the overwhelming majority of eastern districts have experienced high output growth rates⁴⁷.

The western region continues to have more developed infrastructure, in terms of roads and electricity and on the other hand Bundelkhand region is continued to have underdeveloped in general and agricultural infrastructure. The regional differences within U.P. no doubt play a role in the wide interstate disparities that have persisted between U.P. and its Green Revolution neighbours. Central and Western continue to enjoy significantly higher levels of agricultural growth in the value of output (Rupees) and in value of yield (rupees per hectare). Physical yields (kg/hectare) have been consistently higher in these regions since the initial Green Revolution period as well. Central and Eastern U.P.'s irrigation infrastructure is still more developed than Bundelkhand and Eastern U.P. and irrigation levels have continued to be remarkably higher in the two regions.

Western U.P.'s success stories come not only from their natural features, such as fertile soils, higher levels of inputs, irrigation and fertilizers, but from their adoptability to new varieties of seeds. This diversification is seen in the change of cropping patterns in the region, which have been more pronounced than the changes in Eastern U.P. and Bundelkhand. It is possible that in Bundelkhand, where landholding size is comparatively larger predominantly less fertile, that farmers are more risk-averse and hesitant to diversify. One year of crop failure could wipe a small farmer out of business and thus, instead of trying something new, farmers play it safe by relying heavily on producing wheat and rice that assure their food security need. Additionally, with the scant investment in agricultural R&D and the breakdown of extension programs that train farmers to plant new seeds, it is likely that farmers, especially in the less-developed regions of Bundelkhand and eastern U.P., have fewer options for diversification.

To conclude, in order to be able to attain and sustain higher levels of growth in its agriculture and allied sectors of Uttar Pradesh, the areas like; Increased focus

⁴⁷ Bhalla and Singh (2001)

on irrigation; increased expenditure in agricultural research and development; capacity expansion in U.P. for research and development as well as promoting composite seeds and farming practices, diversification of crops as per demand. Revamping of the agricultural extension system to assist farmers in adopting new technologies; building up rural infrastructure, and promotion of agro-based industries will require much higher public investments and the state government's attention. So government needs to expedite in this direction to revitalise the life of the state economy.



Chapter Five

WTO's Agreement on Agriculture Implications on U.P.'s Farm Economy

TO's Agreement on Agriculture:

Implications on U.P.'s Farm Economy

Exchange has been one of the important dimensions of existence and development process. In these transactions the question of who controls, monitors and regulates is crucially important. Development of institutions of control with the advent of modern state and the potential for centralising control increased tremendously. Following these affairs World trade system had become highly restrictive during the depression of the 1930's and more so during the Second World War.

In the 1930s, as economic activity in the major industrial countries diminished and countries began to adopt mercantilist practices, as an attempt to defend their economies by increasing restrictions on imports. To conserve diminishing reserves of gold and foreign currency, some countries restricted foreign imports, other devalued their currencies, and another segment began policies of complicated restrictions on foreign exchange accounts held by their citizens. These measures were arguably detrimental to the countries themselves for comparative advantage from trade without restrictions. It is argued that, if the "size of the pie" is enhanced in free trade improves all industries, there are always industries that lose out when distributional concerns are taken into account, even as others benefit in any given country. Evidently world trade declined sharply, as did employment and living standards in many countries.

As World War II came to an end, leading allied countries considered various plans to evolve an order of international institutional monetary relations. Breton Wood's conference was such an attempt. In this conference the concepts of

International Trade Organisations (ITO)⁴⁸, International Bank for Reconstruction and Development (IBRD) and International Monetary Fund (IMF) were thought in. However consensus on the idea of ITO did not emerge due to conflict of interests. Therefore only two organisations i.e. IBRD and IMF came into existence on December 27, 1945 following international ratification of the agreements reached at the United Nations Monetary and Financial Conference of July 1 to July 22, 1944 in Bretton Woods, New Hampshire.

The IBRD and the IMF were established mainly as a vehicle for reconstruction of industrial world after World War II, with an additional mandate to foster economic growth in developing countries. As USA, Japan and European client countries "graduated" and achieved certain levels of per capita income, these organisations became focused entirely on developing countries⁴⁹.

The progress for free international trade was not striking, as desired by developed countries. So the United Nations Conference on Trade and Development (UNCTAD) was established under auspices of UN in 1963 as a permanent intergovernmental body. UNCTAD is the principal organ of the

⁴⁸The Bretton Woods Conference of 1944 proposed the creation of an International Trade Organization (ITO) to establish rules and regulations for trade between countries. The ITO would have complemented the other two Bretton Woods Institutions: The International Monetary Fund (IMF) and the World Bank. The ITO charter was agreed at the UN Conference on Trade and Employment in Havana in March 1948, but was blocked by the U.S. Senate. As a result, the ITO never came into existence. It has been suggested that the failure may have resulted from fears within the American business community that the International Trade Organization could be used to regulate European cartels rather than to break them up. ("http://en.wikipedia.org/wiki/International_Trade_Organization"). Only one element of the ITO survived: the General Agreement on Tariffs and Trade (GATT). Seven rounds of negotiations occurred under GATT before the eighth round - the Uruguay Round - concluded in 1993 with the establishment of the World Trade Organisation (WTO) as the GATT's replacement. The GATT principles and agreements were adopted by the WTO, which was charged with administering and extending them.

⁴⁹ www.wikipedia.com/UNCTAD

United Nations General Assembly dealing with trade, investment and development issues. The organization's said goals are to maximize the trade, investment and development opportunities of developing countries and assist them in their efforts to integrate into the world economy on an equitable basis in principle at least. The creation of the conference was based on so called concerns of developing countries over the international market, multi-national corporations, and great disparity between developed and developing nations. The idea for developing the ITO was not accomplished; UNCTAD is closely associated with the idea of a New International Economic Order (NIEO)⁵⁰ during the 1970s and 1980s.

It was widely realised that along with the post-war reconstruction, the world trading system should also be radically reformed but the idea of ITO was not materialised. In absence of consensus in developed countries; the General Agreement of Trade and Tariffs (GATT) was simultaneously established along with the setting up of the World Bank and the International Monetary Fund immediately after the Second World War in 1947.

5.1 GATT and the Evolution of the World Trade Organisation (WTO):

Main objective of the GATT, 1947 was to bring about liberalisation in merchandise trade by gradually eliminating trade restrictions like high tariffs, quantitative controls, and selective controls imposed by most of the countries during the Second World War. Prior to the Uruguay Round (1986-1995), one of the major achievements of the GATT, 1947 was its success in dismantling

⁵⁰ A set of proposal to improve the position of Less Developed Countries by changing there term of trade with and their arrangements for borrowing from more advanced economies. These were originated at the United Nations in 1974, and urged trough the UNCTAD. These proposal includes measures to improve the terms of trade for exported of primary products, measures to improve the access of LDC producers to markets for industrial exports in the more developed countries, and a reduction in development of debt burdens, particularly for poorer indebted LDCs .

barriers on trade in industrial commodities in the western countries. This, along with the reconstruction of the Europe, was an important contributory factor to rapid growth of merchandise trade in manufactures in the post war period. However prior to the Uruguay Round⁵¹, GATT governance did not cover agriculture during its various rounds of negotiations. The result was that despite considerable trade liberalisation in industrial commodities, until recent trade in agriculture continued to be highly protected in the post war period. In the matter of agricultural trade, Article XI of GATT⁵², 1947 prohibited quantitative restrictions on imports and exports that than duties, taxes and other charges, whether through quotas, import or export license or other measures but it allowed various exemptions to the rules on tariff measures and subsidies in agriculture. For example countries could impose quantitative restrictions and allow import quotas in agriculture provided these restrictions were necessary to enforce measures to effectively limit domestic production and provided also that a minimum proportion of import relative to domestic production was mentioned. Furthermore although export subsidies were prohibited under the GATT rules, many exemptions were allowed for agricultural commodities in certain circumstances.

Although formally covered by the 1947 GATT, agriculture was exempted from its disciplines for nearly 50 years. After world War-II different countries supported agriculture using different forms of domestic support, export subsidies and market access. Some, like the EU, created system with no limits on production and almost no limits on subsidy spending. This tendency accelerated in the 1980s, to the point where some countries generated surplus

⁵¹ Uruguay Round was the last round of trade talks under the GATT; this round started in 1986 and finished in 1994. The round managed for the first time to include some modest steps to restrict agricultural protection, and arrived at a new General Agreement on Trade in Services (GATS). It also covered reform of the Multi-Fibre Arrangement (MFA) on international trade in textile, and the question of Intellectual Property Rights (IPR).

⁵² GATT Article

that could be sold overseas only with export subsidies. Indeed GATT rules were largely ineffective in regulating agricultural trade. Export and domestic subsidies dominated many agricultural trade flows, and stiffer import restrictions were often ignored.

Despite its formal exclusion from GATT rules, issues related to trade disputes and export subsidies on agricultural products; agriculture continually featured in the previous seventh Multilateral Trade Negotiations (MTN) rounds. In Fact, substantial ground work for the Uruguay Round Agreement on Agriculture was already outlined during the presiding two (Sixth and Seventh) round viz. the Kennedy (1962-67) and Tokyo (1973-79) rounds. But the negotiations remained inconclusive due to tough US stand for across the border support reduction and EC declining to negotiate its common agricultural policy. Six years after the conclusion of the Tokyo round (concluded between 1973 & 1979) GATT member governments decided to prepare for a new round of multilateral trade negotiations. It was only in 1986 at their meeting at *Punta-del-Este* that the GATT members decided to launch the Uruguay Round of Trade Negotiations.

It became increasingly evident in the lead up to the longest drawn Uruguay round negotiations that the causes of disarray in world agriculture went beyond the import access problems, the traditional focus of GATT negotiations. It was felt that the disciplines of GATT, which traditionally focused on import, should be extended to measure affecting trade in agriculture, including agricultural policies and the subsidisation of agricultural exports. The round started with sharp differences of approach to negotiation on agriculture. The main controversy was between the European Economic Community⁵³ (EEC) on the one hand and countries of major exporter of agricultural product's such as Australia, New Zealand, Argentina, Uruguay, Thailand, Canada ad USA, on the other. The ultimate text ended in presenting a compromise where in the developed countries including the USA and EEC agreed to reduce both

⁵³ European Economic Communities is official name of the European Union in the WTO.

domestic support and export subsidies in a phased manner and also provided some access to traditional developing countries partners' through a system of Tariff Rate Quotas (TRQ'S). In the final text, the developing countries were also able to put across some of their concerns about domestic agricultural production and food security. The agreed mandate therefore, recognised the importance of domestic production and food security of developing countries.

The negotiations under the Uruguay Round of the GATT were completed on December 15, 1994. India was one of the active participants in all the GATT negotiations including the Uruguay Round Negotiations. Most of the countries including India welcomed the signing of Dunkel Draft and the setting up of the WTO in 1995. It was hoped that the developing countries which enjoyed a natural; comparative advantage in many agricultural products grown in the tropical regions, would driven means benefit from increased agricultural exports consequent to the freeing of trade and withdrawal of huge subsidies to agriculture by the developed countries.

The Uruguay round reform program comprised specific commitments to reduce support and protection in the areas of domestic support, export subsidies and market access. It also promises strengthens, and made more operationally effective, rules and disciplines in each of these areas, including export prohibition and restrictions. Clearer rules for sanitary and phyto-sanitary measures were also considered to be required, both in their own right and to prevent circumvention of stricter rules on import access through unjustified, protectionist use of food safety, as well as animal and plant health measure. The agreement known as the Final Act of the Uruguay round, representing the outcome of the seven years long multilateral trade negotiations was signed by the then minister of the member countries at the Ministerial level meeting held at Marakesh on the 15 April, 1994. The World Trade Organization (WTO) came into being on January 1st 1995 as the outcome of the Ministerial meeting at Marakesh. It was the outcome of the lengthy (1986-1994) Uruguay round of GATT negotiations. The WTO was essentially an extension of GATT. It

extended GATT in two major ways. First GATT became only one of the three major trade agreements that went into the WTO (the other two being the General Agreement on Trade in Services (GATS) and the agreements on Trade Related Aspects of Intellectual Property Rights (TRIPS)). Second the WTO was put on a much sounder institutional footing than GATT. With GATT the support services that helped maintain the agreement had come into being in an *ad hoc* manner as the need arose. The WTO by contrast is a full fledged institution.⁵⁴

5.2 Principles of the WTO:

The WTO agreements are lengthy and complex because they are legal texts covering wide range of activities, two fundamental principals run through all of these documents-Most Favoured Nation Treatment⁵⁵ (MFN) and National Treatment⁵⁶. This implies that no special deals to trading partners, all members of WTO must be treated the same and locals and foreigners are treated equally for trade and businesses. Predictability through binding i.e. promising not to raise tariffs is called binding a tariff and binding leads to greater certainty for businesses, Promoting Fair Competition among countries and finally freer trade are the other principles of WTO. These principles are at the foundation of the multilateral trading system. At present there are 151 members of WTO

⁵⁴ GATT also was, at least formally, only an agreement between contracting parties and had no independent existence of its own while the WTO is a corporate body recognized under international law.

⁵⁵ Most-favoured-nation treatment (GATT Article I, GATS Article II and TRIPS Article 4), the principle of not discriminating between one's trading partners.

⁵⁶ The principle of giving others the same treatment as one's own nationals. GATT Article 3 requires that imports be treated no less favourably than the same or similar domestically-produced goods once they have passed customs. GATS Article 17 and TRIPS Article 3 also deal with national treatment for services and intellectual property protection.

accounting 90 percent of world trade. In principle all member countries have equal right at this forum. The WTO AoA recognises that some issues are not purely of trade concern. Indeed, Article 20 of the AoA stipulates that the current negotiations for revising the AoA should take non-trade concerns into account. These issues include geographical indications, animal welfare, food security and multi-functionality. But these are very contentious issues because in many poor countries, agriculture not only accounts for a large share of Gross Domestic Product (GDP), but is also the primary source of employment, food and livelihood for the majority of the population. Therefore these non trade concerns have exposed the myths of trade facilitating institutions.

5.3 Functions of the WTO:

The WTO has entered in its 12th years in 2007. However the main affirmed function of the WTO was to provide level playing field to member countries, but keeping in view the recent controversies it failed to do so. In light of recent controversies the most important question to ask about the WTO, is what does the WTO do? The basic functions of the WTO are:

5.3.1 Administering WTO Trade Agreements:

The WTO facilitates the implementation, administration and operation, and furthers the objectives, of this Agreement and of the Multilateral Trade Agreements. It also provides the framework for the implementation, administration and operation of the Plurilateral Trade Agreements.

5.3.2 Forum for Trade Negotiations:

The WTO provides the forum for negotiations among its members concerning their multilateral trade relations in matters dealt with under the agreements in the Annexes to this Agreement. The WTO also provides a forum for further negotiations among its members concerning their multilateral trade relations,

and a framework for the implementation of the results of such negotiations, as may be decided by the Ministerial Conference.

5.3.3 Handling Trade Disputes:

The WTO administers the understanding on rules and procedures governing the settlement of disputes (hereinafter referred to as the "Dispute Settlement Understanding" or "DSU") in Annex 2 to this Agreement.

5.3.4 Monitoring National Trade Policies:

The WTO administers the Trade Policy Review Mechanism (hereinafter referred to as the "TPRM") provided for in Annex 3 to this Agreement.

5.3.5 Technical Assistance and Training for Developing Countries:

Since there is a gap among developed and developing countries regarding technology and trade practices, WTO also provides Technical support to developing and under developed countries for trade augmentation.

5.3.6 Cooperation With Other International Organizations:

With a view to achieving greater coherence in global economic policy-making, the WTO cooperates, as appropriate, with the International Monetary Fund (IMF) and with the International Bank for Reconstruction and Development (IBRD-the World Bank) and its affiliated agencies.

5.4 Structure of the WTO:

The WTO has 151 members⁵⁷ who account for approx 90 percent of world trade. Most agreements in the WTO are arrived at by consensus⁵⁸. Majority

⁵⁷ As on September 30, 2007

⁵⁸ i.e. everybody agrees - not one member dissents

votes are possible but none so far have occurred. It is also worth noting that all the WTO's agreements have been ratified by the members' states' parliaments (where such exist) in contrast to the case for GATT⁵⁹. The three tier structure of the WTO is as follows:

5.4.1 Ministerial Conference:

The Ministerial Conference composed of representatives of all the Members, which meet at least once every two years. The Ministerial Conference carries out the functions of the WTO and take actions necessary to this effect. The Ministerial Conference have been the authority to take decisions on all matters under any of the Multilateral Trade Agreements, if so requested by a member, in accordance with the specific requirements for decision-making in this agreement and in the relevant Multilateral Trade Agreement.

5.4.2 General Council:

There is a General Council composed of representatives of all the Members, which meet as appropriate. In the intervals between meetings of the Ministerial Conference, its functions are conducted by the General Council. The General Council also carry out the functions assigned to it by this Agreement. The General Council establish its rules of procedure and approve the rules of procedure for the Committees provided for in paragraph 7 of the agreement.

5.4.3 Multitude of Committees, Bodies and Councils:

Beside these, there are many other bodies, which are performing under the WTO i.e. Dispute Settlement Body (DSU), Councils for Trade in Goods, Trade in Services and for TRIPS etc.

⁵⁹ Source: WTO website.

5.5 The WTO Agreement on Agriculture (AoA):

The Agreement on Agriculture is one of the two main sectoral agreements in the Uruguay Round Agreements that provide specific rules in the liberalisation of trade in agricultural products. The other one is the Agreement on Textiles. As in all the other multilateral trade agreements that came into effect in 1995, the AOA is binding to all members of the WTO. Based on its avowed goal of establishing a fair and market-oriented trading system in agriculture, the AOA obliges member nations to increase market access and reduce trade-distorting agricultural subsidies. The implementation period was different for developed and developing countries, with the former had given six years or until 2000 to implement their commitments and the latter ten years or until 2004.

5.6 The Main Elements of the Agreement on Agriculture:

The agriculture agreement has three main pillars: market access, domestic support, and export competition. Trade liberalization commitments in these three areas are required for all members of the WTO. The commitments, which had been largely negotiated among countries before the end of the Uruguay Round, are reflected in the country schedules which are integral parts of the Agreement. These commitments are supposedly based on an agreed set of modalities which were outlined in a modality paper. These papers are not part of the Agreement as it served only the purpose of providing the basis for calculation of each member's commitment. The main clauses of WTO's agreement on agriculture are given in Annexure-5.

5.6.1 Market Access:

All countries are obliged to eliminate all their non-tariff barriers like import ban, import quota or quantitative restrictions on imports, etc., and convert these to tariff i.e. "tariffication". The tariff rate should be equivalent to the barriers that were imposed in the base reference period of 1986-88.

All countries have to bind their tariffs on all agricultural products and progressively reduce all tariffs starting from their initial bound rate in 1995 to their final bound rate at the end of the implementation period. The average reduction for developed countries was 36 percent within six years and for developing countries, 24 percent within 10 years; in 2000 and 2004 respectively.

Exceptions to tariffication are allowed under the Special Safeguard Provision and the Special Treatment clause for specific commodities. The Special Safeguard can be invoked only for commodities which have been subjected to tariffication. This provision allows countries to apply additional duties on imports that should not exceed one-third of their existing normal custom duties, in the event of import surges or sudden fall in the world price of the affected commodities. Only one of these conditions can be used to justify a safeguard action at any one time. The Special Treatment clause, like the safeguard clause is not a full exemption to tariffication but a mere postponement to allow protection of specific commodities like staple foods.

For developed countries, postponement was allowed until at least at the end of their implementation period, which was 2000 and for developing countries until the 10th year or 2004. Another provision for increasing market access is the minimum and current access volumes. However, this is contained only in the modality paper and is therefore legally binding only if it is reflected in the specific commitments and detailed in the members' country schedules. The minimum access obliges a country to provide access opportunities for agricultural products where there have been no significant imports in the past, at lower or minimal tariffs. This lower tariff is referred to as the "within-quota tariff" and the quantity of goods imported at this lower tariff is called the "tariff-

rate quota⁶⁰ (TRQ). TRQ is a two level tariff structure, with lower tariff applicable on in-quota imports and higher tariff applied on out-quota imports. The TRQs are to be allocated equally to all countries or on what they call the most-favoured nation (MFN) basis.

5.6.2 Domestic Support:

This pertains to government support to domestic producers. The AoA categorizes domestic support⁶¹ measures into three types:

A. Amber Box:

These are measures that are considered trade-distorting and are therefore subjected to reduction. These are supports that have effect on production like price support and input subsidies.

B. Blue Box:

These are measures such as direct payments to farmers that are intended to limit production. These were considered acceptable and are not subject to reduction, too. Subsidies categorized under the Amber Box are calculated using the Aggregate Measure of Support (AMS)⁶² and are reduced in each year

⁶⁰ TRQ Simply put it refers to a trading mechanism that provides for the application of a custom duty at a certain rate to imports of a particular good up to a specified quantity (i.e. in-quota quantity), and at a different rate to imports of that good that exceeded the specified quantity.

⁶¹ Domestic Support sometime known as "internal support" in agriculture, is any domestic subsidy or other measure which acts to maintain producer prices at levels above those prevailing in international trade; direct payments to producers, including deficiency payments, and input and marketing cost reduction measures available only for agricultural production.

⁶² AMS is quantification of value of domestic support provided by government to specific products as well as non specific products. It include four main elements (1) market price support which is based on the gap between the fixed external reference price and applied

of the implementation period. This means that the annual reduction is computed based on the over-all support in terms of the annual amounts and not on product-specific subsidies. A country is free to choose the product and the rates of subsidy subjected to reduction discipline within the over-all limit of the total amount of subsidy during that year. This provision stipulates for a general *de minimis*⁶³ exclusion from subsidy reduction, which is 5% of the value of production of a product for product-specific subsidies and 5% of the value of total agricultural production for non-product specific subsidies for developed countries and 10% for both subsidies for developing countries. Subsidies above those levels were subjected to reduction from the base period 1986- 1988 level by 20 percent for developed countries over six years (1995-2000) and by 13 percent for developing countries over 10 years (1995-2004).

C. Green Box:

These are assumed not to have effects on production and therefore considered not trade-distorting. They are acceptable under AoA and are not subjected to reduction. They include support for research, marketing assistance, infrastructure services, domestic food aid, etc.

5.6.3 Export Subsidy.

Countries providing direct export subsidies are obliged to reduce these subsidies from their 1988-1990 average level by 36 percent in value and 21

administered price; (2) direct payments dependant of price gap; (3) direct payment not dependant on price gap; and (4) other measures.

⁶³ *De-minimis* is the maximum ceiling on trade distorting domestic support that is not subject to reduction commitments. In other words, countries provide trade distorting domestic support to their farmers below this ceiling. It will not be subject to reduction using the AMS reduction formula. This ceiling or threshold is for both general non-product specific and product specific support. The *de-minimis* level for developed countries is five percent of the total value of production for general non-product specific support and five percent of the value of each crop for product specific support. The *de minimis* level for developing countries is ten percent.

percent in volume for developed countries over 6 years and by 24 percent in value and 14 percent in volume for developing countries over 10 years. Countries which do not have any export subsidy and therefore did not reflect these in their schedule are not allowed to provide export subsidies in the future.

5.7 India's Obligation Under WTO's Agreement on Agriculture:

Being a founder member of GATT and later signatory of WTO India is committed to abide with the Agreement on Agriculture with other WTO rules. The Uruguay Round Agreement on Agriculture sought to bring order and fair competition to this highly distorted sector of world trade by establishment of a fair and market oriented agricultural trading sector. As it has mentioned earlier the obligations and disciplines incorporated in the Agreement on Agriculture are known as the three pillars of the AoA these relate to (a) market access which is also known as "tariffication", (b) domestic subsidy or domestic support and (c) export subsidy. However for various reasons, India is not providing any kind of such subsidies to its agriculture which are subjected to be reduced. Therefore it has defensive interests at large at this forum. India's specific obligations to WTO are as follows:

5.7.1 Market Access Obligation:

Among the three major aspects of the AoA, 'market access' has far reaching implications as it contemplates removal of all import restrictions over a period of ten years, from 1995 to 2004. The participating countries are obliged to open up their internal market by allowing free flow of agricultural commodities (no quotas) and to reduce the import duties, and to eliminate them by 2005. This means free flow of all farm commodities, including food grains and processed food into the country. Such market access would definitely pose unprecedented challenges for our agricultural commodities. The domestic prices, under competitive forces, are likely to come down considerably. Similarly, the traditional export commodities of the country may be in a position to sustain

their share in the international trade only if they can effectively compete with other competing countries in terms of price and quality.

A structured market access, under AoA, envisages tariffication of all non-tariff barriers and then progressive reduction of the tariff levels. According to the commitment, India had undertaken during the Uruguay Round, the tariff levels have been bound at 100 per cent for primary agricultural products, 150 per cent for processed agricultural products and 300 per cent for edible oils, with a few exceptions. Within these limits, there is considerable flexibility to Government of India for imposing appropriate tariffs to regulate import of agricultural commodities for protecting the interest of our farmers. India's final bound and applied tariff rates are given in the Annexure-6 at the end of the chapters.

Quantitative restrictions (QRs) on the import of 825 agricultural products prevailed as on 1st April 1997 have been phased out and totally eliminated by 1st April 2001. India was compelled to take this action on grounds of favorable balance of payment and in compliance with a WTO dispute settlement decision, against complaint from USA. The agricultural products generally attract a maximum slab of 35 percent applied import tariff. On a number of agricultural items, tariffs have been decreased recently to which have serious implication for the interest of domestic producers especially small and marginal farmers.

5.7.2 Domestic Support Obligation:

Provisions of the AoA on domestic support measure to agriculture production and trade have two main objectives, namely, identifying non-trade distorting supports from trade distorting supports being practiced by member countries and to assess the trade distorting supports with a view to discipline and eventually eliminate such supports. As on the basis of the lack or the extent of trade distortion effected by a specific measure of domestic support, they are classified as Green box, Blue box and Amber box supports. As it has been mentioned earlier, Green box supports are allowed, only a few supports under Blue box invite disciplining. All supports under Amber box are to be disciplined

to a *de-minimis* level and the rest was eliminated by 2005. For determining the *de minimis* limit, which is 10 per cent and 5 per cent of the national agricultural GDP in the case of developing countries and developed countries, respectively, the Amber box supports are discerned as product specific (for example, the MSP guaranteed for some crop producers) and non-product specific supports (for example, input subsidies).

The *de-minimis* on the basis of a complex method reckoning the domestic and international prices of each commodity, national agricultural GDP, value of support given under product and non-product specific supports, etc. Support provided under both these categories together should be within the *de-minimis* level. The current level of subsidy being given by the GOI and States may compute far below the *de minimis* level eligible to India under AoA⁶⁴. Hence, on consideration of compliance to WTO, there is no binding need on government of India or any state to dismantle any of the support currently allowed in agriculture. Moreover, according to Article 6(2) of the AoA, input subsidies given to low-income or resource-poor farmers in developing countries are exempted from AMS calculations. The AoA does not define the low-income or resource-poor farmers. Majority of farmers in India are essentially low-income category. In addition, there is scope under AoA for developing countries to directly or indirectly encourage agricultural and rural development as integral part of development programmes with investment subsidies, outside the scope of the stipulated *de minimis* level under AMS. The issue is of the economic capability and willingness of developing countries to provide such assistance.

5.7.3 Export Subsidies Obligation:

Export subsidies of the kind listed in the AoA, which attract reduction commitments, are non-existent in India. India offers that profits from export are exempted from income tax as under Section 80-HHC of the Indian Income Tax Act. This does not constitute an export subsidy defined in the AoA. The

⁶⁴ Ashok Gulati (2001)

developing countries are free to provide certain subsidies, such as reduction of export marketing costs with adjustments in domestic and international transport and freight charges. India is extending this subsidy in certain schemes of Agricultural and Processed Food Products Export Development Authority (APEDA), especially for promoting export of perishable horticultural products. Since countries are renegotiating the agricultural disciplines under the so called Doha Development Round since last six years keeping in view of the rigidity of developed countries regarding the continuous support to their agriculture sector, any final verdict is not perceptible in near future therefore these concurrences are not final.

5.8 WTO's Agreement on Agriculture (AoA) and U.P.'s Farm Economy:

The implications of the provisions of the WTO AoA have to be seen not only against the national scenario but also more importantly in the context of U.P.'s agricultural economy on account of its impact on the livelihood security of the vast majority of population who by and large constitute small and marginal farmers. It is argued in a study undertaken by the Government of India⁶⁵ for assessing the comparative advantage of Indian commodities for international trade revealed that none of the specialty commodities of Uttar Pradesh do enjoy a comfortable edge over other competing countries, mainly because of the high cost of production. Vegetables and fruits as a group offer promise for enlarging international trade on a sustainable basis.

Removal of quantitative restrictions, reduction and eventual elimination of import duties and the obligatory import (not less than 3 percent of the domestic consumption of each primary product as between 1986 and 1988, which further will increase up to 5 percent) could result in a greater flow of agricultural commodities and impact on the prices in the domestic market. The major farm commodities of Uttar Pradesh, which are expected to face intense competition,

⁶⁵ GoI (1998)

are food-grains, sugar, vegetables and mango etc. Different clauses of WTO Agreement on Agriculture have varying implications on U.P.'s farm economy.

5.8.1 Subsidies and Support:

AoA limits the AMS, which is trade distorting, product-specific or non-product-specific, at level not exceeding 10 per cent of the GDP of agriculture origin, in the case of developing countries. From this point of view, there can be no threat to farmers on the ground that the subsidy being given is inadmissible. In India in general and Uttar Pradesh in particular, the subsidy made available to farmers (including the non-product-specific subsidies and price support through government procurement) is at present below the permissible limit under WTO agreement. The dependence of U.P.'s farmers on non-product-specific subsidy is lower than the national average dispensation, which itself is lower than the international level. Because the indirect allocation of grants for non product specific subsidies is much lower than the national average. The product-specific support to agriculture is non-existing in state. As far as export subsidy is concerned, none of the export oriented agricultural commodities produced in Uttar Pradesh enjoys the benefit of any product specific subsidies except the income tax remission granted on export profit (again it is a miniscule amount). So the total share of national subsidy on agriculture to the farmers of Uttar Pradesh is very low in view of its specific pattern of agriculture and absence of price support to most of its major commodities. In fact keeping in view the importance of agriculture sector in Uttar Pradesh for income, employment and livelihood issues state government need to reconsider to focus on the priority to strengthen agriculture.

5.8.2 Special Products and Categorisation of Commodities:

Under the WTO AoA, developing countries can assign some of there items as special products, which are free from tariff binding commitments in case of thereat to excessive imports resulting in adverse bearings on livelihood of small

and marginal farmers. There are anomalies in the categorisation of commodities in respect of binding tariff peaks. The problem of developing countries is that some of agricultural products are categorised in AoA as industrial inputs. The case in point is the overlap between industrial products and agricultural products, because these two groups of products are governed by two different domains of tariff rate under the WTO⁶⁶. The issue becomes intriguing when products classified under these two categories are industrial raw material. The Doha Ministerial Conference has decided to continue the negotiation process. There are also special and differential safeguard in AoA to protect the livelihood interest of farmers of developing countries. However Uttar Pradesh governments have yet to identify its area of interest in agriculture. Sensitive and special products are also yet to be recognised.

5.8.3 Sanitary and Phytosanitary Measures:

The biggest threat from WTO regimes to India in general and U.P.'s exports in particular is directly not in commodity quantity but in the quality standards of the commodity and the increasing standards of quality in international market, especially of phytosanitary nature, such as pesticide residue, myco-toxins, bacterial contamination, presence of foreign bodies, etc. These measures, from the manner by which they are applied with subjectivity in the definition of quality, are becoming a most important non-tariff barriers allowed under WTO. Many countries, particularly the developed set these measures at very high levels partly due to their health consciousness and partly devised to ward off imports from developing countries, which have low capability to create and maintain such high quality regimes. Some of these standards are subjective and arbitrary as it had happened in the case of mango exports to Japan and spices to other European nations. The only two-fold approach is systematic

⁶⁶ For example sugar is categorised as processed product and therefore a matter of high tariff, but if it can be categorised as agricultural product; U.P.'s farmers will be highly benefited because it is the largest producer of sugarcane and sugar in India.

quality upgradation as an essential component of production and processing and intervention of GOI at appropriate WTO forum to moderate the phytosanitary standards and prohibition of discriminatory trade practices on grounds of SPM, when the commodity complies with the set standards. From U.P.'s point of view, agrochemical residue could be a problem for all major potential exportable crops i.e. rice, wheat, fruits and vegetables, horticultural crops etc.

5.8.4 Intellectual Property Rights and Biodiversity:

Uttar Pradesh is endowed with rich biodiversity. The new IPR⁶⁷ regime under WTO offers opportunities as well as threats in using the biodiversity for wealth generation. Absence of clarity and clear-cut policy on this front has led to debates and demoralisation to those taking initiatives for safeguarding our biodiversity. Eligibility under Geographical Indications based on certain specific quality, reputation or other characteristics including appearance of the commodity or goods, which are due exclusively or essentially to the described three geographical elements, namely, geographical environment, biological factors and production or processing factors. These specific qualities and characteristics must be amenable for clear definition or mere description. For instance, it is generally perceived that the Basmati rice, Neem and Haldi (turmeric) etc., have high market reputation⁶⁸. This reputation in each of these produces could be attributed to certain tangible and intangible characteristics. The tangible characteristics have to be elaborately defined with the help of database, figures, photographs, etc. depending on whether the characteristics involve shape, size, colour and appearance, test weight, content and

⁶⁷ IPR is Ownership of ideas, including literary and artistic works (protected by copyright), inventions (protected by patents), signs for distinguishing goods of an enterprise (protected by trademarks) and other elements of industrial property.

⁶⁸ All these: Basmati Rice and medicinal property of Neem and Haldi (turmeric) is patented in U.S.

composition of chemical factors determining the intrinsic quality valued in the market parlour. The TRIPs regime and the national legislation on Geographical Indications empower the state in getting protection to these commodities, which are already known in market parlour over centuries for quality arising from the origin.

5.9 The Promising Inferences for Uttar Pradesh Economy:

New export possibilities for Uttar Pradesh may emerge on account of expected increased market access under AoA regime, but the ongoing negotiations are bring to a standstill due to rigidity of developed countries on agricultural trade facilitation, in near future any fundamental change is not going to take place. There may be opportunities for foodgrains produced by varieties of composite seeds and tropical vegetables, especially preferred by ethnic consumers abroad. The state government needs to develop adequate infrastructure facilities and cost-effective production technologies based local and indigenous knowledge and ambience to promote competitive export-oriented production with state-of-the-art packaging, transport and trade capability. The employment and wealth it can generate are significant. Early lead can be of advantage in capturing this highly competitive market.

The WTO agreement on agriculture is basically skewed in favor of developed countries' interests. The discipline on market access, domestic support and export subsidies couched numerous provisions that basically enhance measures used by developed countries to protect their markets and agriculture. While developing countries are accorded what they call special and differential treatment, in the form of slightly lower tariff and subsidy reduction and longer implementation period, it remains grossly negligible compared to the huge concessions and exemptions that are made available to developed countries to protect their existing trade-distorting subsidies and agricultural dumping practices.

The principle of free trade which underpins the trade liberalisation commitments in the AoA inherently works against the development and food security needs of developing countries. Under free trade, countries should produce only the goods which they can produce efficiently with which they have comparative advantage and import those including the food crops which they produce domestically, from others who can produce them more efficiently. The implication is that developed countries, which by virtue of their huge subsidies can dump food products in the international market, should continue supplying developing countries with their highly subsidised agricultural surplus therefore state like Uttar Pradesh may not compete due to high cost and variation in quality.

AoA focuses merely on further liberalising markets, reciprocity, which is a core principle of the WTO and supposedly directs the trade liberalisation commitments of members has been rendered meaningless. It has, in fact misled many developing countries to rapidly open up their markets to dump imports from the developed world in order to gain access to huge markets in developing countries. On the other hand developed countries put up higher tariff walls called tariff peaks and tariff escalation upon tariffication that effectively discriminated against developing countries' exports. Meanwhile, the exemptions that apply to developing countries are often of not much use given the long-running negative fiscal position. Since Uttar Pradesh is already facing grim circumstances regarding fiscal budget, so we can not expect from state government to help the marginalised farmers.

Developing countries are prohibited from using the same tools that enable developed countries to pursue their development and food security goals in the past decades. While developed countries are allowed to retain and even expand their huge agriculture subsidies, developing countries are prohibited from raising their subsidies beyond the *de-minimis* level. They are not also allowed to use any export subsidy in the future. Again due to fiscal constraints

Uttar Pradesh is not in state to increase subsidy even up to the *de minimus* level.

Many important provisions in the AoA allow developed countries to circumvent their trade liberalisation obligation thus ensuring that their agriculture remain protected. The Due Restraint Clause under Article 13 protects those subsidies that have been exempted from reduction from being challenged. The Special Safeguard provision which applies only to those products which have been tariffied has benefited mostly developed countries. This provision is a major limitation on export from resource poor and technologically diffident states like Uttar Pradesh.

The AOA exacerbates the inequalities existing between the highly industrial agriculture of developed countries and the predominantly subsistence and backward agriculture of the developing nations. In Uttar Pradesh, agriculture is dominated by small-scale producers tilling very small plots of land, with very little access to capital and productive resources, and is perennially indebted to landlords and moneylenders. Because of their marginal existence, small-scale farmers are not in a position to compete in the international markets. Thus, as the small-scale and traditional farming of the state lose out in a clearly unfair competition with the developed countries, a number of small farmers are displaced and the livelihoods of the majority of agricultural producers in the state are put to increasing risks. This condition worsens the deepening income inequalities between and within state.

The AoA and its inherent bias for commercial agriculture production devastate not only the livelihood of poor farmers but also the food security of marginalized people in state. The continuous dismantling of subsidies and support to agriculture in India creates not only gross disincentives against domestic food production, but wipes out its viability and sustainability. And U.P. is not away from negative effects. Since the mid-90's Uttar Pradesh have faced declining growth rates in food production which seriously threatens their capacity to meet domestic food consumption.

However in this situation the moot question remains for developing and under developed countries in general and Uttar Pradesh economy in particular as to how the people are provided with squire-meals from agriculture, and impair the productivity to the level of surplus condition so that this state can enter into international market for trade in agricultural commodities.

5.10 Why is the AoA Highly Iniquitous?

The agriculture agreement itself is fundamentally flawed and highly iniquitous; and that instead of ensuring level playing field in international trade in agriculture, it reinforces the monopoly control of wealthier countries and their transnational corporations over global agriculture production and trade. The agreement is basically skewed in favour of developed countries' interests. The discipline on market access, domestic support and export subsidies couched numerous provisions that basically enhance measures used by developed countries to protect their markets and agriculture. While developing countries are accorded what they call special and differential treatment, in the form of slightly lower tariff and subsidy reduction and longer implementation period, it remains grossly negligible compared to the huge concessions and exemptions that are made available to developed countries to protect their existing trade-distorting subsidies and agricultural dumping practices. In this regard there is a very thin chance for states like Uttar Pradesh to protect there source of livelihood of masses.

The principle of free trade which underpins the trade liberalisation commitments in the AoA inherently works against the development and food security needs of developing countries including India as well as Uttar Pradesh where more than two third populations is directly and indirectly dependant on agriculture and 85 percent of farming community belongs to small and marginal farmers. Under free trade regime, countries should produce only the goods which they can produce efficiently or with which they have comparative advantage and import those including the food crops which they produce domestically, from

others who can produce them cheaper and more efficiently. The implication is that developed countries, which by virtue of their huge subsidies can dump food products in the international market, should continue supplying developing countries with their highly subsidized agricultural surplus and developing countries should focus on exporting crops that will earn them the foreign exchange to buy food from rich countries. Thus, developing countries end up becoming more dependent on imports that continually drain their scarce foreign reserves, stunt the growth of their agriculture and economies and weaken their capacity to feed their own population in the long-term.

AoA focuses merely on further liberalising markets of poorer countries even as it continues protecting the subsidies and protectionist measures such as tariff peaks and other trade barriers employed by rich countries. Reciprocity, which is a core principle of the WTO and which supposedly directs the trade liberalization commitments of members has been rendered meaningless. It has, in fact misled many developing countries to rapidly open up their markets to dumped imports from the developed countries in order to gain access to there huge markets. But their actions were not "reciprocated" by equally aggressive steps. Instead, developed countries put up higher tariff walls called tariff peaks and tariff escalation upon tariffication that effectively discriminated against developing countries' exports. Worse, the subsidies employed by developed countries to protect their agriculture, expand their production and gain monopoly control in the international market are accorded more protection with the exemptions introduced in the AoA's subsidy reduction. The categorisation of subsidies into trade-distorting, which are subjected to reduction discipline and into non-trade distorting, which are not, allows the developed countries to shift their existing grossly huge subsidies into acceptable boxes or categories that are exempted for subsidy reduction (e.g. green box and blue box). Meanwhile, the exemptions that apply to developing countries are often of not much use given the long-running negative fiscal position of states like Uttar

Pradesh. In the end, with such gaping loopholes, the AoA clearly serves only to legitimize and strengthen the trade-distorting practices of developed countries. Developing countries are constrained from using the same tools that enable developed countries to pursue their development and food security goals in the past decades. While developed countries are allowed to retain and even expand their huge agriculture subsidies, developing countries are prohibited from raising their subsidies beyond the de minimis level. They are not also allowed to use any export subsidy in the future.

Many important provisions in the AoA allow developed countries to circumvent their trade liberalization obligation thus ensuring that their agriculture remain protected. The Due Restraint Clause under Article 13 protects those subsidies that have been exempted from reduction from being challenged. The Special Safeguard provision which applies only to those products, which have been tariffied, has benefited mostly developed countries. The AOA exacerbates the inequalities existing between the highly industrial and capital intensive agriculture of the Developed Countries and the predominantly subsistence and backward agriculture as ours.

In Uttar Pradesh, agriculture is dominated by small-scale producers tilling very small plots of land, with very little access to capital and productive resources, and is perennially indebted to landlords and moneylenders. Because of their marginal existence, small-scale farmers are not in a position to compete in the international markets. Thus, as the small-scale and traditional farming lose out in a clearly unfair competition with the industrial farming of Developed Countries, millions of small farmers are displaced and the livelihoods of the majority of agricultural producers in Uttar Pradesh are put to increasing risks. This condition also worsens the deepening income inequalities between and within nations. The dismantling of protection and support to agriculture in India creates not only gross disincentives against domestic food production, but wipes out its viability and sustainability. Since the mid-90's India in general and Uttar Pradesh specifically have faced declining growth rates in food production

output which seriously threatens their capacity to meet domestic food consumption. In conclusion one can say that the AoA and its inherent bias for capital intensive commercial agriculture production of Developed Countries devastates not only the competitiveness of capital scare agriculture of Uttar Pradesh but also the livelihood of poor farmers and food security of sates. Therefore if we wish to save the agrarian economy of state and livelihood of millions of our farmers, we must have to act now. It can be done by promoting indigenous farming practices and composite farming in state, which has proven efficiency.



Chapter Six

Changing Agriculture and Food Security Scenario in Uttar Pradesh Some Evidences from Ground

Changing Agriculture and Food Security Scenario in Uttar Pradesh: Some Evidences from Ground

The economy of Uttar Pradesh is predominantly agrarian. Performance of agriculture and allied activities are critical in determining the growth rate of the state. However, the share of this sector in state income has been gradually declining. Since agriculture is the base of social & economic structure of the state and contribution of agriculture sector cannot be judged only on the basis of its contribution to the GSDP. It is the largest employment provider. Primary sector (inclusive of mining) contributed 36.8% to the state's income in 2003-04 and provided employment to 66% of total workers. Out of the total workers, 82 percent were rural and about 77 percent of the total rural workers were cultivators and agriculture labourers⁶⁹. In terms of absolute numbers the sector was providing direct employment to about 35.57 million persons in the state out of which 33.76 million were in rural areas. This phenomenon of workers distribution was also similar in districts surveyed for the study (Annexure-7).

In the preceding decade (i.e. 1990-2000) agricultural growth in the state was almost stagnant and conditions of the farmers of state were not improving. Percentage of cultivators was decreasing but the percentage of agriculture labour was increasing. Incidences of casual labour work are also increasing and as compare to 1991, number of marginal workers was doubled in 2001. As per census 2001, 91% of the total marginal workers were rural and 81.3% of the total rural marginal workers are cultivators and agriculture labour.

In category of the main rural workers only about 18% were agriculture labour, where as in case of the marginal workers about 54% were agriculture labour.

⁶⁹ Census of India, 2001

This was clearly reflected in reducing employment-providing capacity of the agriculture sector because of increasing pressure of dependent population. The ultimate pressure on the agriculture sector was also increasing because the adequate off-farm employment opportunities were not available in rural areas. Increasing population burden, dependence on agriculture, change in land utilisation pattern due to urbanisation and decreasing size of operational holdings were many linked issues which were not allowing agriculture to realise its potential in state. In Uttar Pradesh average size of operational holding was estimated to about 0.78 hectare and majority of the farmers were engaged in subsistence agriculture, as they were small and marginal. The number of rural households owning less than half a hectare rose to 62% in 1999-2000 from 54% in 1993-94. Thus the land less and near landless population is increasing and poverty concentration amongst this section is increasing. Reducing size of the operational land holding is not the only problem with this sector, changing climatic conditions, natural calamities like flood & drought, increasing costs of agriculture inputs, extreme dependence on vagaries of monsoon, etc., are some other critical factors that are affecting small and marginal farmers adversely.

Slipping ownership of land alone is an important host of miseries of rural households as it is the main source to ensure livelihood and food security to rural households. The present crisis is becoming so rampant in a pace that farming community is now realising that they can not survive alone on the basis of agriculture. Out of an estimated number of 22.15 million rural households in Uttar Pradesh, 77.4% are farmer households. According to data based on NSSO's 59th round survey, 24% of UP farmers (27% at all India level) did not prefer farming and felt that agriculture is not profitable. In all 41% farmers in UP (40% at all India level) felt that, given a choice, they would take up some other career as a source of livelihood. This indicates a serious problem wherein the main protagonist is suffering from low self esteem and does not believe that what he is doing is worthwhile economically or even

socially. In the social hierarchy, farming as a profession now figures considerably low in the social order⁷⁰.

Shrinking employment opportunities in agriculture sector and non-availability of appropriate income generating opportunities in rural areas of state is compelling rural people for migration in search of means of survival and resulting in increasing casual workers in the urban areas. These observable facts are not good for state's economy as agriculture is the backbone of Uttar Pradesh economy. Predicaments of agriculture in state will not only spoil the income and employment opportunity in Uttar Pradesh, but will also affect the food security of vulnerable section of society. In the light of these issues and keeping these realities in view a survey has been conducted to assess the ground realities of farmers regarding cost of cultivation and return from farm, cropping preferences and food security situations as a part of this study.

6.1 Survey Design:

To observe the foresaid issue; four districts- Gaziabad, Varanasi, Bareilly and Basti has been selected on the basis of market arrivals, production, quality of wheat and rice (Fair and Average Quality) and distribution of land holdings. Primary data has been collected on sample basis applied stratified purposive sampling method. Out of these four districts, Gaziabad and Varanasi are wheat market and Bareilly and Basti are rice markets located in different region of state. 50 observations have been collected from each market from different strata of farmers (i.e. landless, marginal, medium and big farmers). These samples are consisting of 10 big farmers and 40 small and marginal farmers from each district. These samples are assorted from five villages of one Tahseel (sub district) of each district. The basis of selection for data collection from these villages was the population engaged in farming. First the one block in every district and then five villages is selected on the same basis.

⁷⁰ Sunil Kumar, 2006

These samples are consisting of 40 big and 160 small and marginal farmers. Altogether 200 samples from 20 villages of four Tahseels, one each from all sample districts has been collected to investigate the change in cropping pattern and changes in food security scenario. Detailed profile of sampled Districts, Tahseels and Villages is given in Annexure -8 at the end of the chapters.

In Gaziabad, Garhmukteswar Tahseel is selected for sample collection where 54.6 percent rural population is engaged in agriculture. 50 samples, 10 each from Dhaulpur, Budhilia, Dariyapur, Himmatpur and Bhowpur villages has been collected. Bhanpur Tahseel of Basti district, where 88.2 percent people are getting work from agriculture; is selected for sampling. These samples are collected from Pakari, Adampur, Khore, Ahirauli and Chirai Bujurg villages.

Banarsipur, Taridih, Nonipur, Barazi and Barchikala villages from Pindara Tahseel has been sampled from Varanasi district, where 59 percent working peoples are depended on agriculture. In Bareilly survey has been conducted in Fatehpur, Bikunagala, Shora Khurd, Bhagalpur and Bikanpur villages of Fareedpur Tahseel, where agriculture is the main source of subsistence for 74.4 percent of population.

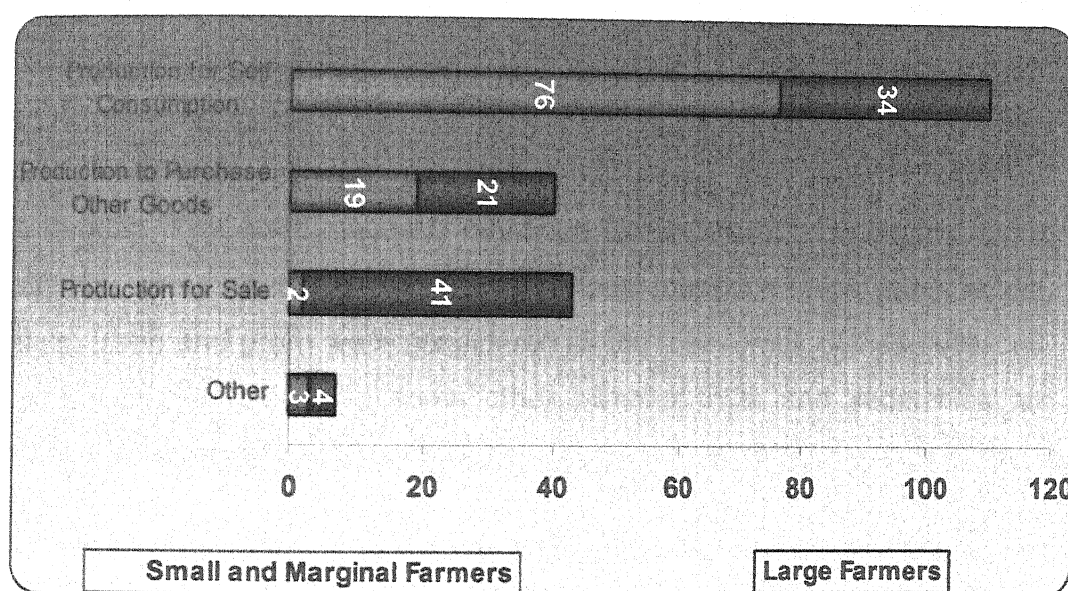
Different questions were asked to these farmers about various aspects of farming. Some major issues were covered were; objective of farming, sales of marketable surplus in market, reasons for early sale, markets where they sale their produce and food security aspects, etc.

6.2 Survey Findings:

Fundamental question of the survey was about their objective of farming. There was variation regarding main purpose of farming. Small and marginal farmers were engaged in farming because they perceive it was the main source of their livelihood. Their family consumption demands were first and foremost in priority list to be met by their tiny holdings but self production on farm. Most of these farmers (76%) were engaged in farming to fulfil their own food demand. About

19 percent of small and marginal farmers admitted that it was only the agriculture by which they could meet their demand of family needs. Figure 7.1 shows that for the large farmers it was a commercial activity. They produce agricultural commodities (41%) to sale in market. However, for large farmers too, the other main objective was to produce for self consumption. Agricultural activities also provide purchasing capacity to both of them to meet their other demand.

Figure 6.1: Main Objective of Farming of Different Category of Farmers



6.2.1 Cropping Preferences:

Cropping activities go on all the year-round in state, provided water is available for crops. In Uttar Pradesh there are three distinct seasons, *kharif* (July to October), *rabi* (October to March) and crops grown between March and June are known as *zaid*. These crops are grown sole or mixed (mixed-cropping), or in a definite sequence (rotational cropping). The land may be occupied by one crop during one season (mono-cropping), or by two crops (double-cropping) which may be grown in a year in sequence. Of late, the trend is even more than two crops (multiple-cropping) in a year. These intensive cropping may be done

either in sequence or even there may be relay-cropping-one crop under sown in a standing crop. With wide-rowed slow growing cropping patterns, companion crops may be grown. There are various ways of utilising the land intensively.

As indicated earlier in this chapter, the survey was intended to assess the ground realities with in regards to preference of sowing crops, cost of cultivation and return from farm and food security scenario. Further it was tried to compare the survey findings with official data.

The other important issue was to weigh up whether opening up of agriculture has any bearing on cropping preferences of farmers. There are many ways in which a cropping pattern can be discussed. A broad picture of the major cropping patterns can be described by taking the major crops into consideration. The south-westerly monsoon crops (kharif), rice (paddy) bajra, maize, ragi, groundnut and cotton and the post-monsoon crops (rabi), wheat, sorghum (rabi) and gram were considered as the main crops of these seasons. Cucumber, watermelon and some other summer fruits and vegetables are grown in zaid season.

Since the present study is related to two crops i.e. rice and wheat only; the cropping pattern is considered within the framework of this chapter and only rice and wheat are highlighted.

6.2.2 The Rice-Based Kharif-Season Cropping Patterns:

Rice is grown in the high-rainfall area or in areas where supplemental irrigation is available to ensure good yields. If the crop has to depend solely on rainfall, it requires not less than 30 cm per month of rainfall over the entire growing period. Nearly 45 per cent of the total rice area in India receives 30 cm per month of rainfall during July and August of the south-westerly monsoon and much less during other months. In Uttar Pradesh rice is grown on 19 percent (4.6 m ha) of its cropped area and represents about 12.4 per cent of the all-

India area under this crop. Rice is concentrated in the eastern districts of Uttar Pradesh where the alternative crops are pulses, groundnut, sugarcane, bajra and jowar in the decreasing order of their importance. Tobacco is also grown in some districts.

Maize, jowar and bajra form the main kharif cereals, whereas ragi and small millets come next and are grown on a limited area. By and large, maize is a crop grown commonly in high-rainfall areas in state or on soils with a better capacity for retaining moisture, but with good drainage. Next comes, jowar in the medium rainfall regions whereas bajra has been the main crop in areas with low or less dependable rainfall and on light textured soils. The largest area under the kharif maize is in Uttar Pradesh (1.4m ha), followed by Bihar (0.96 m ha), Rajasthan (0.78 m ha), Madhya Pradesh (0.58 m ha) and Punjab (0.52 m ha). In the maize growing areas of Uttar Pradesh, rice in kharif and wheat in rabi are the main alternative crops. In some areas, bajra, groundnut, sugarcane, ragi and pulses are taken as alternative crops. Bajra is more drought-resistant crop than many other cereal crops and is generally preferred in low-rainfall areas and on light soils.

6.2.3 The Wheat Based Rabi Season Cropping Patterns:

Among the rabi crops, wheat, together with barley and oats, jowar and gram, are the main base crops among the rabi cropping patterns. Generally, wheat and gram are concentrated in the subtropical region. Sugarcane is another important crop of this season. U.P. has 51 percent area of total area under sugarcane in India. Potato is among the other important vegetable crop of the season of which U.P. is the largest producer. It has 33.6 percent of all India area under this crop.

In many sugarcane-growing areas, especially in western Uttar Pradesh; mono-cropping is practised, and during the interval between the crops, short duration

seasonal crops are grown. In Uttar Pradesh, wheat and maize are the rotation crops. In the potato-growing region, maize, pulses, wheat are the alternative crops. In the tobacco-growing areas, depending on the season and the type of tobacco, jowar, oil seeds and maize are grown in rotation. In the jute-growing areas, rice is the usual alternative crop. In the case of plantation-crops, intercropping with pulses and fodder crops is common in state.

6.2.4 Mixed Cropping Pattern:

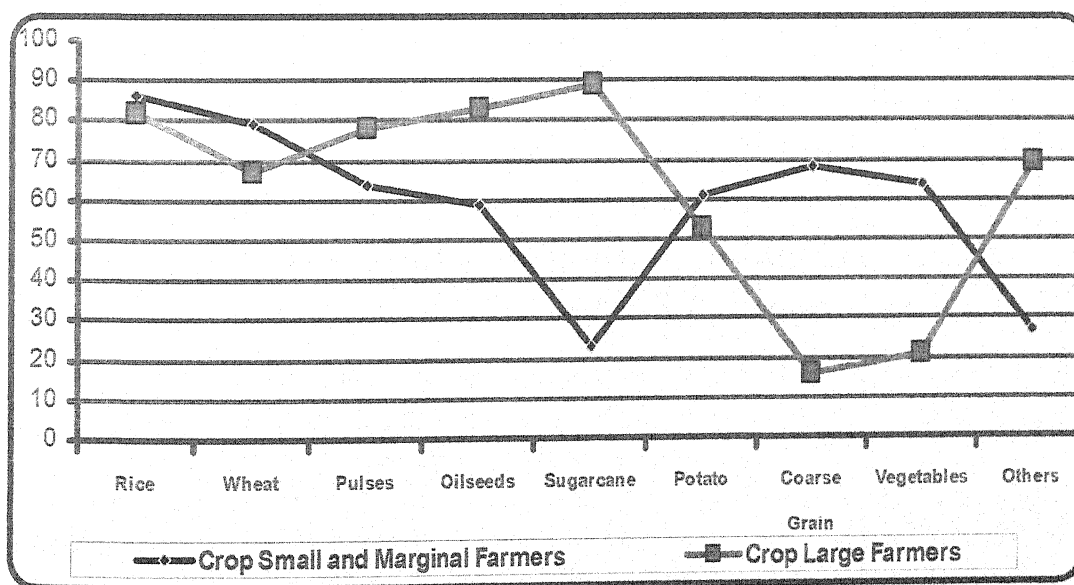
Crops mixtures are widely grown, especially during the kharif season. Pulses and some oilseeds are grown with maize, jowar and bajra. Lowland rice is invariably grown unmixed, but in the case of upland rice, several mixtures are prevalent in eastern Uttar Pradesh. During the rabi season, especially in the un-irrigated area, wheat and barley and wheat and gram or wheat + barley + gram are the mixtures of grain crops. Brassica and Sun flower are grown mixed with gram or even with wheat. Mixed cropping was considered by researchers a primitive practice, but in practice it is regarded as the most efficient way of using land by small and marginal farmers. It ensures an efficient utilization of land as well as food security with variety choices and nutritional balance.

6.3 Changing Cropping Pattern - Evidences From Field:

Socio-economically, the traditional farmers in Uttar Pradesh are resource poor and ranges from the relatively poor peasant to some of large farmers who operate with a high input intensity in agriculture. The outstanding fact on the socio-economic aspect is the smallness of holdings having an average farm-size in most areas being lower than the standard economic size of farms. There are farmers in practice of shifting cultivation also. Between these two extremes, various intensities of cultivation are practised. Crops production, therefore, presents an enormous diversity owing to their family need, circumstances in which they are operating, status of debt, etc. The most important element of

farming is the production of grains and the dominant food-chain is grain-man. All these factors have led to the present cropping patterns, which are getting more and more intensive both in respect of the number of crops grown per year and in respect of the intensity of inputs utilized in the production of these crops. As stated above, two hundred farmers were surveyed to get inferences regarding the cropping preferences and changes in cropping pattern of different group of farmers. It has been observed that there were divergence of preferences in two groups, in view of their objective of farming and resources available to them. Figure 7.2 clearly shows that foodgrain crops i.e. wheat (86%), rice (79%), and pulses (64%) were the most preferred crops among small and marginal farmers. Whereas sugarcane, sunflower, mint etc. were low on list. Predilection of large farmers was quite different. Sugarcane (89%), oilseeds (84%), than rice (82%) were on preferences. Coarse grain (16%) and vegetables (19%) was least chosen crop for large farmers⁷¹.

Figure-6.2: Cropping Preferences of the Surveyed Farmers



⁷¹ Source: Survey data for the study

This observation revealed that preference of small and marginal farmers was first to ensure food demand of family than strive for other crops, while large farmers clearly preferred to cultivate the commercial crops for better income.

6.3.1 Distribution of Cost of Cultivation:

To study the input-output relation, distribution of cost of cultivation is observed. However it is a complex exercise, but efforts have been made to get some inferences. It has been found that small and marginal farmer bears a major part of cost (14%) on imputed wages of own labour. Beside this the other major head was rent of land especially for those who cultivated on leased farms. It was as high as up to 20 percent. Usually the rent was paid in form of final produce. Hence only 80 percent produce was perceived as actual production, which was divided between land owner and rentier as adhiya (equal share). Thus the actual cultivator gets only 40 percent of final produce for bearing all the variable cost and risks. On the other hand land owner gets 60 percent of final produce against sharing / leasing the land.

Cost on fertilizers and manure (9%), non institutional credit (8%), irrigation (9%) was found as the other major head of outlay for small and marginal farmers. To encapsulate cost on labour (paid and imputed) and credit (institutional and non institutional) were the main head of expenses for small and marginal farmers.

In contrast to small and marginal farmers large farmers were used to carry out only supervision work as farmer and owner of the cultivated land. They are highly dependant on hired labour and modern inputs. Their outlay of expenditure was concentrated on hired labour (14%), fertilizers and manures (13%) and irrigation (12%).

Table 7.3 reveals some important facts that large farmer spends three times more on seeds, pesticides and on machinery. They also spend more on fertilizers (7%), irrigation (3%) and machines (4%). The other element of this fact is that in result of this extra expanse; there was no any significant difference in yield and production per unit. However this fact was comparatively

more correct in case of foodgrain crops than others. There was a significant gap in value of output per unit in case of commercial crop in consideration.

Table- 6.3: Distribution of Variable Cost

Head of Expenses (in percentage)			Small and Marginal Farmers	Large Farmers
Variable Cost	Labour	Family (Imputed)	14	2
		Hired	3	14
	Interest on Debt	Institutional	3	6
		Non-Institutional	8	1
	Irrigation	Government	2	2
		Self (imputed)/Hired	9	12
	Seed	Self or Purchased	3	9
	Fertilizers and Pesticides	Fertilizers and Manure	8	13
		Pesticides	1	3
	Machine	Hired	5	5
		Owned (Imputed)	2	6
	Rent on Hired Farm	(In case of share cropper)	20	0
Fixed Cost		(100 - Running cost)	22	27

Source: Survey Data

6.3.2 Marketed and Marketable Surplus:

Distribution of cost of cultivation data shows that large farmer bears relatively higher cost for cultivation of same crops, but there were difference regarding objective of cultivation. Large farmers perceived it as a business, while for small and marginal farmers; it was a way of life and only means for subsistence. The other related important fact which came out from survey was that small and marginal farmers consumes themselves, while large farmers sell a major part of final produce. .

According official data (Appendix-3: Table 7.8); small farmers had lowest (39.03%) marketable surplus for sell in market. It also refers that medium category of farmers had largest marketable surplus (49.55%) not large farmers (41.06%)⁷², which is a general perception.

However survey data holds different views. Interaction with small and marginal farmers revealed that they had a very little marketable surplus at their own dispense. Marketed surplus by these category of farmers were either sell in distress to meet-out their emergencies and demand for other goods or at pre determined conditions as decided by money lenders and local traders. Most of them sell this surplus in local market within four to eight weeks of harvest. The marketable surplus was insignificant in case of share cropper and marginal farmers. It also revealed that larger farmers had comparatively higher volume of marketable and marketed surplus.

6.3.3 Time of Sale in Market:

In Uttar Pradesh a large quantum of foodgrain crops is produced by small and marginal farmers. Since farming activities by these categories of farmers are performed mainly through debt and credits, therefore a large part of their agricultural produce is sold out within two months of harvest.

Small and marginal farmers have not as much of marketed surplus as compared to large farmers (Appendix-2: Table 7.12). Small farmers utilised 60.79 percent of their produce for personal uses, while 38.94 percent is utilised by large farmers. Therefore big farmers have larger volume (61.06%) as marketable surplus in comparison to small cultivators (39.03%)⁷³.

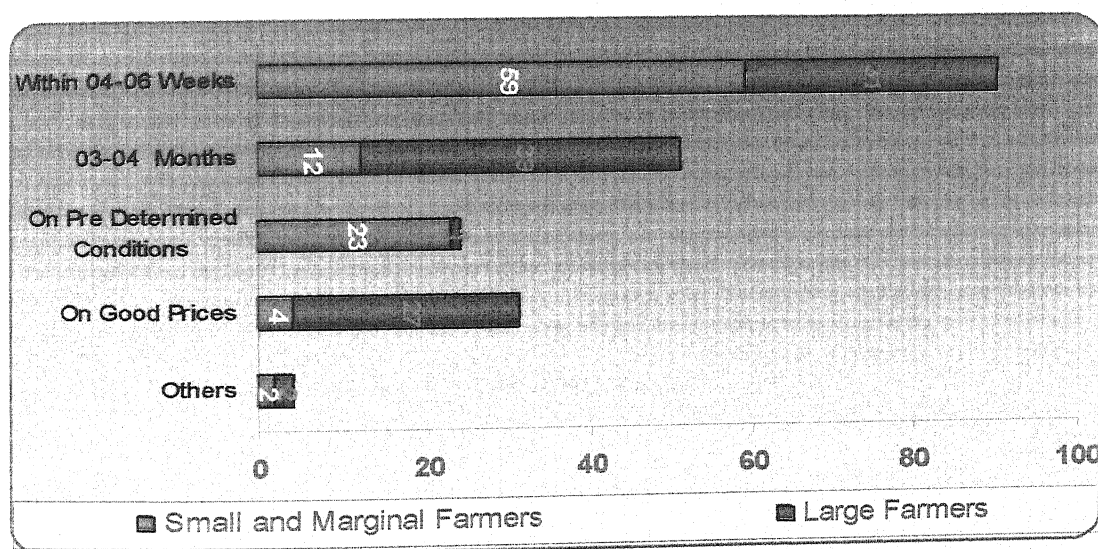
The main reason behind this tendency is that small and marginal farmers themselves consume 49.83 and 37.79% of their production respectively. Contrary to this large farmers utilised only 28.84% for the same (Appendix-2, Table 7.13).

⁷² www.indiastat.com

⁷³ www.indiastat.com

Survey data reveals that most of small and marginal farmers (59%) were used to sale their produce within four to six weeks on their own fortitude. Other 23% also sale their produce within month to local traders, money lenders, relative or others on pre determined conditions. Only 2 percent of small and marginal farmers responded that they might wait for good prices. In the case of large farmers 31 percent sell their produce within four to six weeks. Other 39 percent sell within three to four months. 27 percent of them were in position to hold their produce until they got better prices.

Figure-6.3: Time of Sale in Market

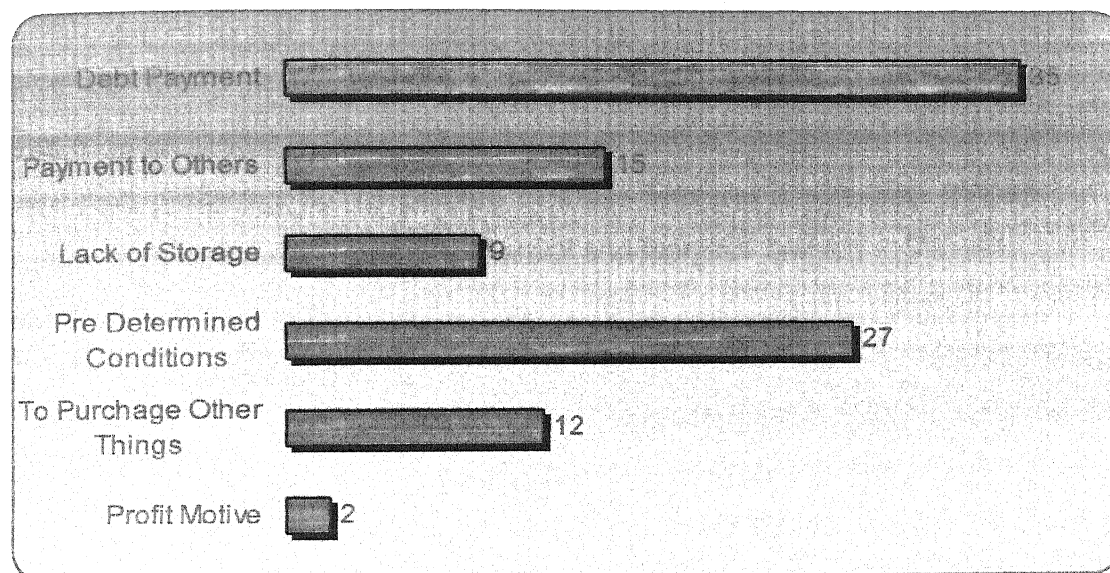


6.3.4 Reason for Early Sale:

Since the phenomenon of distress sale is predominant among small and marginal farmers, therefore this question was asked to small and marginal category only. Figure 7.4 shows that debt and credit was the main reason for early sale. About 62% farmers sold out their produce without waiting for early sale. About 62% farmers sold out their produce without waiting for reasonable prices. Out of these farmers 35% sell to repay their debts and 27% sell early due to being abided by conditions with moneylenders and creditors. About 12 percent farmers replied that they sold their produce immediately to fulfil their other demands. Payments to share of land owner and hired labourers

(15%) and lack of storage (9%) were the other major reasons for sale in lean period (regarding price/value) of season.

Figure- 6.4: Reason for Early Sale



Here it is clear from survey data that the need of cash to pay their liabilities of small and marginal farmers compels them to sell their produce as early as possible. While on the other hand large farmers perform cultivation largely by their own capital. Therefore they have not as much of liabilities and may wait for better prices. Another important factor is that small and marginal farmers are generally poor in resources, so they can not store their produce for a long time. It also forced them to sell early.

6.3.5 Place of Sale:

Usually farmers of all categories prefer to sell their produce directly to traders (Appendix-2: Table 7.9), because it provides them instant payment, especially to marginal and small farmers, who are compelled to sell to repay their liabilities and dues. More than 72 percent of produce was sold to traders and money lenders by these marginal farmers⁷⁴. Marginal farmers also prefer to directly

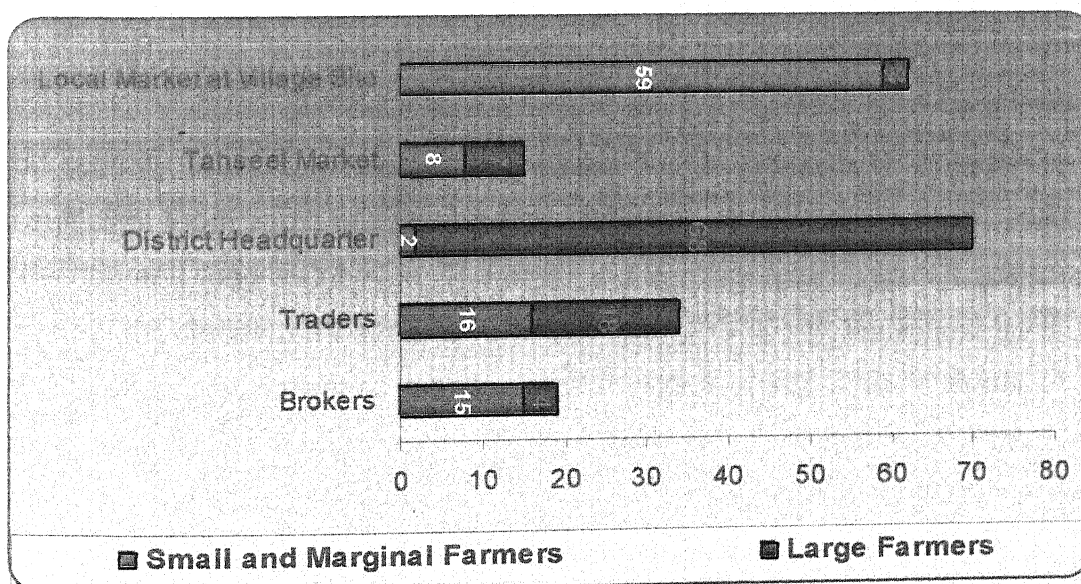
⁷⁴ www.indiastat.com

sell to consumer, because it takes them away from clutch of brokers and ensure better prices to some extent.

Primary data divulge some differing facts. Figure-7.5 shows the findings of primary data. It has been found in survey that 59 percent of small and marginal farmers prefer to sell their produce at village level. The other 16 percent of small and marginal farmers sell to local traders. On the other hand, most of large farmers prefer to sell at Kisan Mandi at district headquarter. Local traders were next preferred by 18 percent of these farmers. It was also evident by primary data that a good number of small and marginal farmers (15%) also sold their produce to brokers.

The most important factor behind this phenomenon was that small and marginal farmers had modest quantity as marketable surplus. Another significant factor was access to district market. Most of small and marginal farmers did not have proper transportation facility. According to them, carrying their small surplus was also not cost effective; therefore they were destined to sell at local market on lower prices.

Figure- 6.5: Preference of Market for Sale



6.3.6 Food Security:

Food security and safety go hand in hand with sustainability. With the advent of the 'Green Revolution' in the 1960s and 70s, the traditional methods of farming and agriculture were given a go-by. Indigenous farming techniques that were developed and fine-tuned by the rural people over centuries were substituted with a new approach of HYV seeds, irrigation, pesticides, chemicals and fertilisers.

Technical approach of this type of farming did not lead sustainable farming in absence of proper extension services succeeded to increase production and productivity as well as income of farmers to some extent. Despite this increase in production and productivity the share of agriculture in the state's income declined over the years. This massive decline in the contribution of agriculture to NSDP is very disturbing, as it has not been accompanied by a matching fall in the workforce dependent on agriculture.

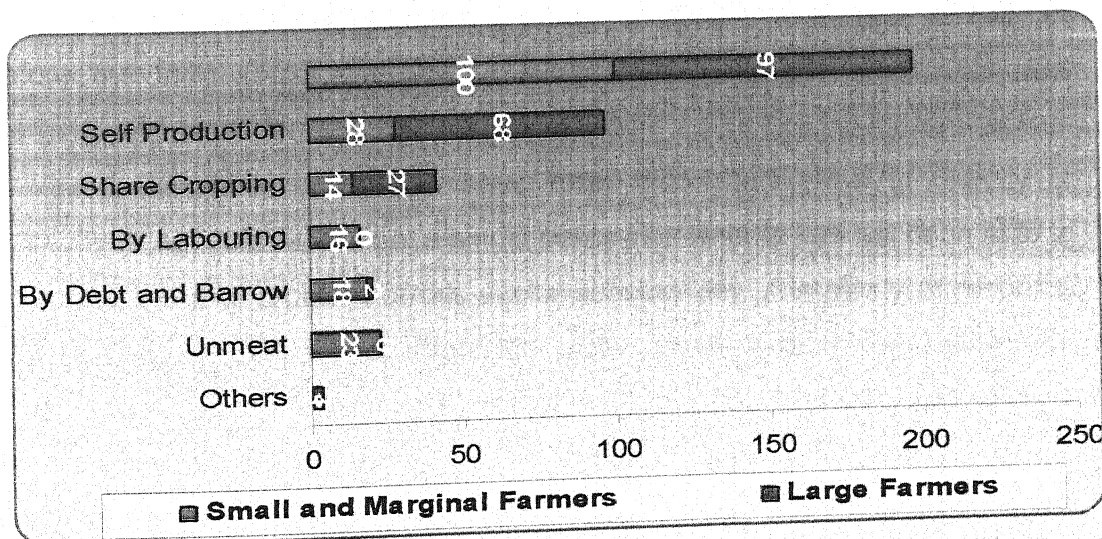
Decreasing share of agriculture in NSDP and almost constant share of workforce dependant on agriculture is resulted in declined per capita real income in this sector. In these circumstances, higher dependency of rural families on agriculture made them vulnerable. It is posing factual threat to their food security and livelihood.

Food security essentially refers to the access and the capacity of a person to get sufficient food, and it will depend on such factors as purchasing power, food production and food distribution. The ability to absorb shocks to such a system from drought, floods, civil strife, etc., is also relevant. At the household level, food security may define as access to food, which is adequate in terms of quality, quantity, safety and cultural acceptability, for all household members. While many definitions of household security exist, they virtually all hinge on a household's ability to get sufficient food to the household door. The determining factors of household food security for rural households are considered here is access to food by self production and by other means. (Refer the table 7.13)

It has been brought forward by survey data (Table 7.7) that only 28 percent of small and marginal farmer's households were self sufficient. However their self sufficiency was partial, because generally they were producing foodgrains only and even a little catastrophe can disturb their overall food security. Same situation was correct with other 14 percent small and marginal farmers who were dependent on share cropping. It may differentiate as food security on mercy; because share croppers in general are not permanent farmer, they are cultivator till the mercy of land owner. It is in common practice that land owners frequently terminate the sharecropper to avoid any legal disorder.

The remarkable fact which came out from survey is that almost one forth (23%) small and marginal farmer's food demand was unmet. A large number of farmers of this category were dependant on labouring (16%) and debt and barrows (18%) for their food. In case of large farmers most of them were self sufficient (68%) through their own production. Other 27 percent were dependant on share cropping. But, since they were land owner and possessed major part of produce; it might not affect their food security.

Figure- 6.6 Food Security of Rural Households



The survey data brought some important fact about state of different category of farmers of U.P.'s agriculture. Condition of small and marginal farmers in Uttar

Pradesh is very miserable. They are underprivileged; both by natural compensation and government policies. They are at forefront of all adversaries of globalised economic regime. State agriculture is in deep crisis and the economic policies pursued during the last fifteen years have intensified the agrarian distress that have culminated in suicidal death in Bundelkhand region of state as well as other part of India.

The agricultural workforce has been severely marginalised during this period. The cost of cultivation has increased manifold due to increase in prices of diesel, fertilizers, power, seeds, and other farm inputs. The supply induced extension services encouraged the farmers to apply more quantities of the purchased inputs that enhance the credit requirement and hence indebtedness increased among them. Technological fatigue, decline in public investment, large gap in actual and potential yields, stagnation in new cultivated area, marginalisation of holdings, land degradation and depletion of water resources, lack of risk mitigation mechanism, widening gap between per worker GSDP in agriculture and non-agriculture are some of the major concern of agriculture in the post reform regime.

Above all, the key concern is the livelihood security of majority of agricultural labourers and small and marginal farmers of state. The biggest challenges before the farm sector are how to sustain the livelihood of resource poor marginal and small farmers and how to generate productive job for farm sector. However a number of policies have been introduced affecting directly or indirectly to agriculture, but not a single policy instrument has not been able to invigorate the real problem of this sector substantially. A majority of resource poor farmers are not able to afford the costly private research and extension services therefore state has to play a major role by catering to the need of small and marginal farmers.

What farmers really need in present context is a viable and profitable agricultural venture that actually depends upon a set of policy initiatives ranging from increase in public sector investment in agriculture infrastructure, research

and development, extension services to develop a sound processing and effective linkage between production and marketing to insure proper remuneration for their employment. Above all, these efforts and policy measures needs an urgent call, because agriculture sector is almost overlooked in globalisation regime of last fifteen years and came to a dead end where, further it can not wait for sympathy of policy makers.



Appendix_1

Table -6.1: Main Objective of Farming of Different Category of Farmers

Main Objective of Farming	Small and Marginal Farmers	Large Farmer
Production for Self Consumption	76	34
Production to Purchase Other Goods	19	21
Production for Sale	2	41
Other	3	4
Total	100	100

Table-6.2: Cropping Preferences of the Surveyed Farmers

Cropping Preferences(of the Surveyed Farmers		
Crop	Preferences (in percentage)	
	Small and Marginal Farmers	Large Farmers
Rice	86	82
Wheat	79	67
Pulses	64	78
Oilseeds	59	83
Sugarcane	23	89
Potato	61	53
Coarse Grain	68	16
Vegetables	64	21
Others	27	57

*These cropping preferences refer to 160 farmers of small and marginal category and 40 farmers of large farmer category.

Table- 6.4: Time of Sale in Market

Time of Sale in Market	Small and Marginal Farmers	Large Farmers
Within 04-06 Weeks	59	31
03-04 Months	12	39
On Pre Determined Conditions	23	1
On Good Prices	4	27
Others	2	2

Table- 6.5: Reason for Early Sale

Reason fro Early Sale	Percentage
Debt Payment	35
Payment to Others	15
Lack of Storage	9
Pre Determined Conditions	27
To Purchase Other Things	12
Profit Motive	2

Table- 6.6: Preference of Market for Sale

Selling Point	Small and Marginal Farmers	Large Farmers
Local Market at Village Site	59	3
Tahseel Market	8	7
Kisan Mandi at District Headquarter	2	68
Traders	16	18
Brokers	15	4

Table- 6.7 Food Security of Rural Households

Food Availability by Source	Small and Marginal Farmers	Large Farmers
Self Production	28	68
Share Cropping	14	27
By Labouring	16	0
By Debt and Barrow	18	2
Others	1	3
Unmet	23	0

Table- 6.8: Marketed and Marketable Surplus by
Different Category of Cultivators

Marketed and Marketable Surplus* by Different Category Cultivators								
Category of Farmers	Total Quantity** Utilize		Marketed Surplus		Marketable Surplus		Difference	
	Quantity	Percentage	Quantity	Percentage	Quantity	Percentage	Quantity	Percentage
Small	553.75	60.97	340.55	37.5	354.49	39.03	13.94	1.53
Medium	295.25	50.45	282.33	48.3	289.93	49.55	7.6	1.3
Large	203.97	58.94	137.59	39.8	142.07	41.06	4.48	1.29
All	1052.97	57.24	760.47	41.3	786.49	42.76	26.02	1.41

* Data relates to Triennium ending 1998-99 to 2000-01

** Quantity figures are in 000, tonnes

Table- 6.9: Sale of Foodgrains by Different Category of Farmers

Sale of Foodgrains by Different Category of Farmers							
(% to Total Sale)							
Category of Cultivators	Consumer	Trader	Cooperative	FCI	Money Lenders	Others	Total
Small Cultivators	14.26	69.39	10.29	2.31	2.97	0.79	100
Medium Cultivators	4.12	81.68	8.43	3.3	1.84	0.63	100
Large Cultivators	47.71	47.38	2.99	1.53	0.25	0.15	100

{{Triennium Ending 1998-1999} (2002)}

Table- 6.10: Quarter-wise Total Sale of Foodgrains by Different Category of Cultivators in Uttar Pradesh

Quarter-wise Total Sale of Foodgrains					
by Different Category of Cultivators in Uttar Pradesh					
Category of Cultivators	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter	Total
Small Cultivators	0.23	0.73	0.02	99.02	100
Medium Cultivators	0.11	0.84	0.07	98.97	100
Large Cultivators	41.79	28.19	29.11	0.92	100

{{Triennium Ending 1998-1999} (2002)}

Table- 6.11: Agency Wise Sale by Different Category of Farmers

Agency Wise Sale by Different Category of Farmers						
Category of Cultivators	Consumer	Trader	Cooperative	FCI	Money Lenders	Others
Small	14.26	69.39	10.29	2.31	2.97	0.79
Medium	4.12	81.68	8.43	3.3	1.84	0.63
Large	47.71	47.38	2.99	1.53	0.25	0.15
All Category	21.62	66.1	7.55	2.34	1.83	0.55

{{Triennium Ending 1998-1999} (2002)}

Table- 6.12: Category wise Marketed Surplus and Marketable Surplus

Category wise Marketed Surplus and Marketable Surplus*				
(In Percentage)				
Category of Cultivators	Total Quantity Utilize	Marketed Surplus	Marketable Surplus	Difference
Small	60.97	37.5	39.03	1.53
Medium	50.45	48.25	49.55	1.3
Large	38.94	59.76	61.06	1.29
All Category	57.24	41.34	42.76	1.41

*{{Triennium Ending 1998-1999} (2002)}

Table- 6.13: Total Retention of Foodgrains for Consumption by Category of Cultivators

Total Retention of Foodgrains for Consumption by Category of Cultivators				
	Small% to Production of Category	Medium% to Production of Category	Large% to Production of Category	All% to Production of Category
Uttar Pradesh	49.83	37.79	28.84	41.93
India	36.09	26.98	20.71	29.61

*{(Triennium Ending 1998-1999) (2002)}

Table- 6.14: Retention of Foodgrain for Various Purpose and Purchase to Meet Family Requirement

Retention of Foodgrain for Various Purpose and Purchase to Meet Family Requirement		
Purpose of Retention	Paddy	Wheat
Farm-family consumption	26.08	27.49
Consumption by permanent labour and temporary labour	2.22	2.13
Seed purpose	1.8	3.35
Animal feed	0.18	1.79
Payment in cash and kind	1.54	1.88
Estimated purchases for consumption	5.38	0.04

Chapter Seven

Trade Competitiveness of Uttar Pradesh Agriculture

Trade Competitiveness of Uttar Pradesh

Agriculture

Government did, and still does, influence the legal and economic environment in which farmers and other economic agents operate. Most of these interventions in agriculture were conceived to deal with situations associated with famines and scarcities that existed before the Green Revolution period. The policies of the central government since the beginning of the 1990s have had direct and indirect effects on farmers' welfare.

The implementation period for the AoA of WTO coincided with the reform process which has been under way since 1991 in response to the macroeconomic crisis. To address this crisis, key reforms were initiated, by way of ending the old industrial licensing regime, more liberal policies towards foreign direct investment, significant reduction in tariffs on agricultural and industrial goods, currency devaluation and reduction in subsidies provided mostly directly or indirectly to primary sector. Emphasis was on deregulation of control and liberalization of economy.

It was presumed that freeing agricultural markets and liberalizing external trade in agricultural commodities would provide price incentives leading to enhanced investment and output, while broader trade liberalization would shift inter-sectoral terms of trade in favour of agriculture. However, there were changes in patterns of government spending and financial measures which also necessarily affected the conditions of cultivation.

In the case of the domestic market, the withdrawal of the restrictions on the movement of agricultural commodities is one of the major changes that have been brought about during the present reform process. The licensing requirements and stocking limits for the wholesale and retail trade that were a part of the Essential Commodities Act (1955) have been removed. The system

of Selective Credit Controls, which was used to regulate institutional credit to traders in commodities since 1943, has also been abandoned. Future markets, which were banned since 1942 under various statutory orders and since 1955 under the Forward Contract (Regulation) Act, are also now allowed⁷⁵.

As far as external trade is concerned, in the early 1990s, a few steps to liberalise agricultural trade were initiated about a year and a half after the July 1991 reforms, and these have been followed by a number of prominent reforms thereafter. Now, the exports of all major agricultural commodities have been liberalised. These reforms have brought about some significant changes in agricultural trade and competitiveness of Indian agricultural commodities.

The process accelerated from the late 1990s, in tune with WTO agreements, and involved liberalization of export controls, liberalization of quantitative controls on imports and decontrol of domestic trade. Quantitative restrictions on imports and export restrictions on groundnut oil, agricultural seeds, wheat and wheat products, butter, rice and pulses, were all removed from April 2000. Almost all agricultural products are now allowed to be freely exported as per current trade policy⁷⁶. This has been associated not only with the removal of quota control on imports, but the reduction of import tariffs, except in certain cases (such as soya bean) where the tariff levels have reached the bound levels. In any case, the optimism surrounding the signing of the Uruguay Round agreement was such that for a range of important agricultural commodities, including rice wheat and oilseeds, the Indian trade negotiators had declared zero rates of tariff binding.

⁷⁵ In the budget for financial year 2007-08, finance minister has banned future trading of 16 agricultural commodities, most of which are grains. But this announcement is made to check the rising inflation, which causes a political downside in assembly elections to ruling parties in government. It is not a long term policy perspective.

⁷⁶ Government has banned export of wheat in current season (2007-08). Again this decision has been taken in light of crisis of artificially high prices of wheat in last season and hefty import of wheat on unfavourable conditions even though generating a large production.

After world trade prices of various crops started crashing from 1996 onwards, the Government of India was forced to renegotiate the bound tariff levels many agricultural items. Now W.T.O. negotiations are on hold, because developing countries are demanding their due share in world trade and protection from artificially unfavourable trade conditions especially in agriculture, in which they have comparative advantage. On the other hand developed countries are rigid and showing their unwillingness to cut down subsidies provided to their farmers. Developed countries are also seeking access to non agricultural market (NAMA) and service sector. They are also forcing developing countries to open their agricultural market for necessary import, even though being self sufficient in agriculture. In this situation, how much W.T.O. will be able to cater the development objective and to what extent it will be able to provide a level playing field is a matter of serious concern.

7.1 Trade Competitiveness and Incentive Indicators:

Trade competitiveness is a dynamic phenomenon, which would vary depending upon the changes in international and domestic prices consequent upon demand and supply of commodities and market condition. Opening-up of international Agricultural trade increases international competition. In open market, the producers of price effective commodity lead competition subject to direct and indirect support/subsidies. Volatility in international prices arising out of inter year fluctuations has serious implication for India's export competitiveness of agricultural commodities specially for Uttar Pradesh where domestic factors like infrastructure, technology, public investment and agricultural research and development activities are yet to prove effective.

Effective incentives provided to producers play a major role to determine the trade competitiveness in international market. Government provided these incentives either by subsidizing the export or imposing taxes on imports. An export subsidy raises the domestic price of an exportable commodity similarly import taxes raise the domestic price of importable goods, but both export

subsidy and import taxes make domestic goods competitive in international market. The incentives to Indian farmers are also affected by tariff and non-tariff policies which affect imports and exports, and by other domestic policies which affect the prices they are paid for their outputs and the cost of their inputs. These incentives are measured as of Nominal Protection Coefficient (NPC), Effective Protection Coefficient (EPC) and Effective Subsidy Coefficient (ESC).

7.2 Nominal Protection Coefficient:

Very roughly, the nominal protection of a commodity is simply an estimate of the extent to which its price has been affected government interventions in the country's international trade. In the study, nominal protection is measured as the *Nominal Protection Coefficient* (NPC) of a commodity, defined as the ratio of that commodity's domestic price to its international reference price. If the NPC is greater (less) than one, then the commodity under consideration is protected (disprotected or in effect taxed), compared to the situation that would have prevailed under free trade at the same exchange rate. The nominal protection of tradable inputs is defined in the same way. NPC of wheat and rice has been calculated for twenty years ranging from 1985-86 to 2004-05 for three variant of prices i.e. Farm Harvest Prices (FHP), Minimum Support Prices (MSP) and Whole Sale Price (WP).

7.2.1 NPC of Wheat - Importable Hypothesis:

NPC has been calculated on all three variants of prices i.e. FHP MSP and WP. Farm harvest prices are calculated by a set of factor cost involved in cultivation. Usually FHP has a tendency to be lower than Minimum Support Price (MSP). But FHP in Uttar Pradesh was very fluctuating. For many years there were very marginal difference in FHP and MSP.

Albeit the study period is stretched from 1985-86 to 2004-05 but FHP of wheat are available only form 1985-86 to 2001-02, therefore incentive indicator at FHP has been calculated for these years. NPC of wheat at FHP under

importable hypothesis had a fluctuation trend. It was more than unit in 1985-86 and 1886-87. After that it was lower than one excepting two years of 1989-90 and 1998-99.

However FHP for recent years are not available, but NPC of wheat at FHP in recent past indicating that value of NPC is marginally lower than unit. It is 1.12 for 1998-99 and 1.05 for 2001-02. In other words it has an increasing trend. If this phenomenon will continue than our farmers will loose this competitive advantage in domestic market. Minimum Support Prices (MSP) is set of administered prices announced by government year by year. Change in incentive indicators and competitiveness at MSP during study period can be attributed to this change in prices.

As table 6.1 suggests, NPC of wheat under importable hypotheses with respect to MSP was more than one from 1985-86 to 1987-88. For next two years it was less than one indicating that wheat was competitive in domestic market for these years. In 1990-91 wheat was again non-competitive. From 1991-92 to 1997-98 wheat at MSP was rather competitive. Since 1998-99 prices of U.S. wheat was almost stagnant, while on the other hand MSP was increasing. It resulted in increase in value of NPC, which made wheat non-competitive in domestic market. This phenomenon was continue from 1998-99 to 2004-05.

Figure-7.1: NPC of Wheat- Importable Hypothesis

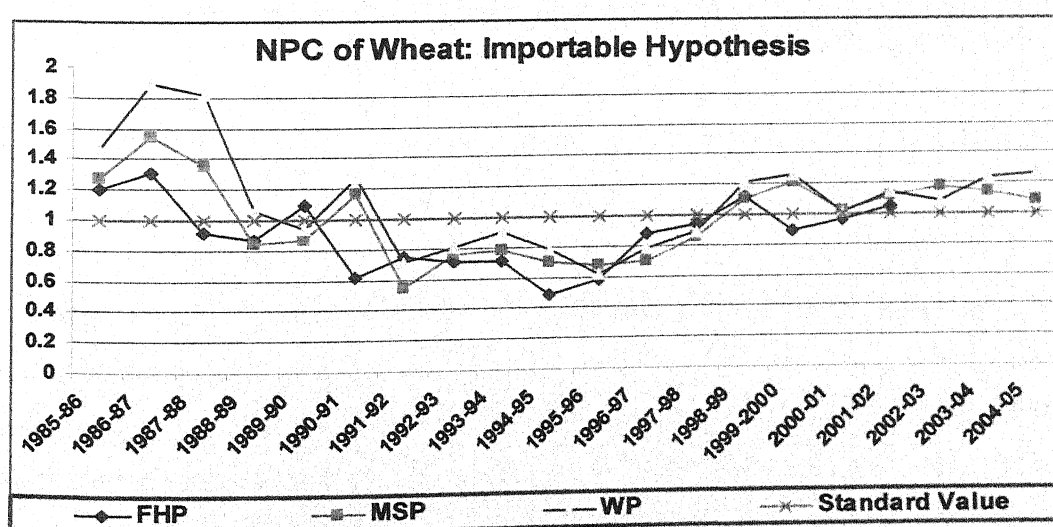


Table-7.1: Nominal Protection Coefficient of Wheat

NPC-Wheat						
Year	Importable Hypothesis			Exportable Hypothesis		
	FHP	MSP	WP	FHP	MSP	WP
1985-86	1.2	1.27	1.47	1.49	1.45	1.68
1986-87	1.31	1.55	1.89	1.8	1.79	2.18
1987-88	0.92	1.36	1.82	1.72	1.55	2.09
1988-89	0.87	0.84	1.06	1.1	1.04	1.2
1989-90	1.09	0.87	0.94	0.94	0.98	1.05
1990-91	0.62	1.17	1.27	1.7	1.45	1.85
1991-92	0.75	0.55	0.72	0.8	0.61	0.8
1992-93	0.72	0.76	0.81	0.81	0.84	0.91
1993-94	0.72	0.79	0.9	0.94	0.89	1.01
1994-95	0.49	0.7	0.78	0.81	0.77	0.87
1995-96	0.58	0.68	0.62	0.57	0.53	0.68
1996-97	0.88	0.7	0.78	0.88	0.78	0.86
1997-98	0.94	0.86	0.89	0.91	0.96	0.99
1998-99	1.12	1.11	1.21	1.23	1.24	1.27
1999-2000	0.89	1.21	1.26	1.22	1.35	1.39
2000-01	0.96	1.02	1.01	0.98	1.14	1.15
2001-02	1.05	1.12	1.14	1.12	1.19	1.19
2002-03	**	1.18	1.08	**	1.31	1.14
2003-04	**	1.14	1.24	**	1.28	1.19
2004-05	**	1.08	1.26	**	1.22	1.31

Wheat with respect to WP under importable hypothesis was non-competitive for most of the years. Value of NPC was more than unit from 1985-86 to 1990-91 except for 1989-90, when it was less than one, but so far element of competitiveness is concerned it was marginal. Wheat was competitive in domestic market for a few years from 1991-92 to 1995-96. Since wheat prices in domestic market from 1996-97 to 20004-05 was on rise and at the same time international wheat prices was more or less stagnant. As a result wheat

became non-competitive in domestic market for these years. The value of NPC of wheat under importable hypotheses is different for three variant of prices as it can be seen in figure 6.1 above.

7.2.2 NPC of Wheat - Exportable Hypothesis:

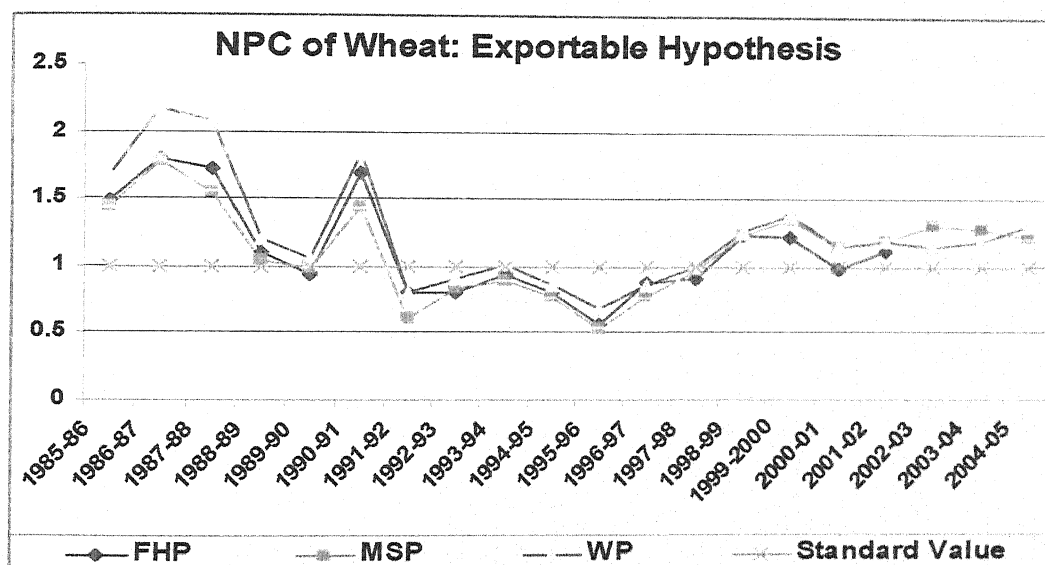
Estimate of NPC under exportable hypothesis indicate wheat at FHP in international market from 1985-86 to 1990-91 was more than one, showing non competitiveness of wheat in international market. It was 0.99 in 1989-90 which displayed very marginal value regarding competitiveness. U.P.'s wheat at FHP had some element of competitiveness from 1991-92 to 1997-98, but sudden increase in FHP resulted in higher NPC from 1998-99 to 2001-02, which made wheat non-competitive in international market except 2000-01. It was 0.98 in 2000-01, with marginal value of competitiveness.

Wheat at MSP under exportable hypothesis was non-competitive for most of the study period. Value of NPC from 1985-86 to 1990-91 was more than one. For 1989-90 it was less than one but difference in prices was very nominal. From 1991-92 to 1997-98 NPC was less than one indicating that wheat was competitive in international market at MSP for these years. Again, since MSP was increasing and at the same time wheat prices in international market was stable since 1997-98 therefore wheat became non competitive under exportable hypothesis from 1998-99 till 2004-05.

Estimate of NPCs at wholesale prices under importable hypothesis were more than one from 1985-86 to 1988-89, the main reason was that whole sale prices in domestic market was much higher than international prices of wheat. Since 1989-90 pace of increase in whole sale prices of wheat was declining, which was reflected in NPC as it was lower than one for these period from 1989-90 to 1997-98, except for 1990-91. Although NPC at whole sale prices was lower than one for these years, we can not say that it has a cutting edge advantage as the value of NPC was only slightly lower than unit.

From 1998-99 to 2004-05 wheat prices in international market declined, while on the other hand wheat prices in domestic prices witnessed increasing trend. In effect NPC at whole sale prices under importable hypothesis increased from 1.01 in the year 2001-02 to 1.24 in 2004-05. These figures suggest that from the year 1994-95 value of NPC was continuously increasing and since 1998-99 it was always higher than one. It implies that since 1998-99 wheat at whole sale prices was non competitive in domestic market. Figure 6.2 depict that wheat was never competitive in international market from 1996-97 onwards on any variant of prices.

Figure-7.2: NPC of Wheat-Exportable Hypothesis:



7.2.3 NPC of Rice – Importable Hypothesis:

Farm Harvest Prices (FHP) of rice is not available for entire study period. We do not have FHP data for recent years. Therefore NPC has been calculated for 1985-86 to 2000-01 only.

Value of NPC at FHP indicates that rice was reasonably competitive in domestic market over the study period. NPC was much below the unit from 1985-86 to 1999-00. It starts showing adversaries from 2000-01 as NPC

became 1.01; however it was very marginal value to articulate it perfectly non-competitive.

Rice of Fair and Average Quality at MSP was competitive in domestic market from 1985-86 to 1998-99, because prices of rice in international market for same quality was much higher than MSP. But since MSP of rice increased over the years, competitiveness of domestic rice reduced further. In 1999-00 rice was marginally competitive under importable hypothesis. Due to continuous increasing MSP, competitiveness had totally erased in 2003-04.

India is among the largest rice exporter in world and Uttar Pradesh is a major contributor of this pool. Export of rice is subject to quality, size, fragrance etc. Basmati rice, a long size fragrant variety of rice has a good reputation in international market. But there is also a sizeable demand of non basmati rice in international market, especially in South Asia.

Figure 7.3: NPC of Rice-Importable Hypothesis

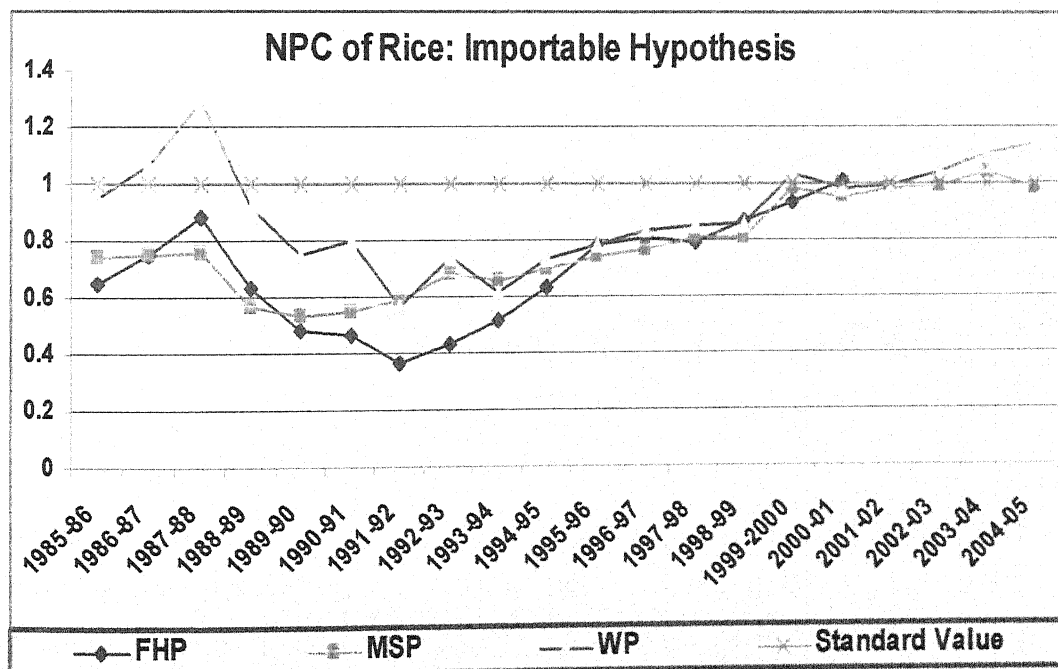


Table-7.2: Nominal Protection Coefficient of Rice

NPC-Rice						
Year	Importable Hypothesis			Exportable Hypothesis		
	FHP	MSP	WP	FHP	MSP	WP
1985-86	0.65	0.74	0.95	0.73	0.82	1.06
1986-87	0.75	0.75	1.07	0.84	0.84	1.19
1987-8	0.88	0.76	1.29	0.99	0.85	1.44
1988-89	0.63	0.57	0.92	0.71	0.63	1.02
1089-90	0.48	0.53	0.75	0.53	0.57	0.83
1990-91	0.47	0.55	0.8	0.52	0.69	0.89
1991-92	0.37	0.59	0.57	0.41	0.62	0.73
1992-93	0.43	0.68	0.74	0.48	0.72	0.81
1993-94	0.52	0.66	0.62	0.59	0.71	0.69
1994-95	0.63	0.7	0.73	0.68	0.74	0.7
1995-96	0.78	0.74	0.78	0.84	0.78	0.59
1996-97	0.81	0.77	0.83	0.87	0.81	0.59
1997-98	0.79	0.81	0.85	0.94	0.85	0.68
1998-99	0.87	0.81	0.86	0.96	0.85	0.79
1999-2000	0.93	0.98	1.03	0.98	1.04	1.07
2000-01	1.01	0.95	0.98	1.06	1.01	1.12
2001-02	**	0.98	0.99	**	1.06	1.16
2002-03	**	0.99	1.04	**	1.06	1.09
2003-04	**	1.04	1.11	**	1.12	1.16
2004-05	**	0.98	1.14	**	1.07	1.19

The whole sale prices of rice in Uttar Pradesh were quite low in study period regarding competitiveness in domestic and in international market. NPC at whole sale prices under importable hypothesis suggest that U.P.'s rice was competitive in domestic market from 1985-86 to 2001-01 barring two years 1986-87 and 1989-90. Since 2000-01 prices of rice were continuously increasing, this reflected in higher value of NPC. The value of NPC of rice at

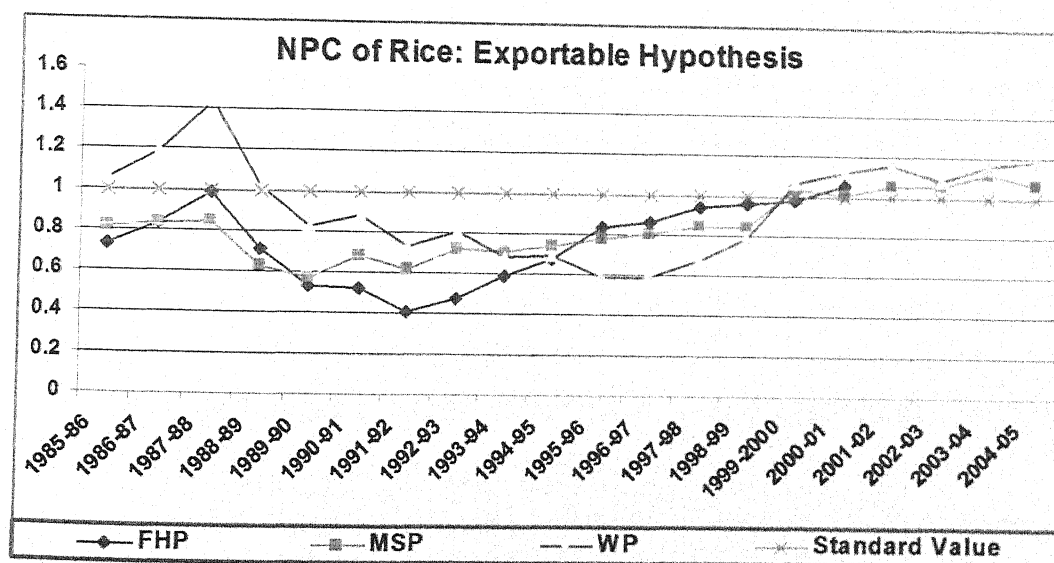
whole sale prices became more than one indicating that it became non-competitive in domestic market from 2000-01 to 2004-05. As shown in figure 6.3 rice was quite competitive in domestic market at all three variant of prices, but after 1999-00 it became non-competitive.

7.2.4 NPC of Rice - Exportable Hypothesis:

The value of NPC at FHP under exportable hypothesis shows that rice was fairly competitive in international market from 1885-86 to 1996-97. The competitiveness started decelerating form 1997-98 and got completely eliminated in next two years.

NPC of rice at MSP under exportable hypothesis was less than one from 1985-86 to 1998-99. It shows that U.P.'s Rice at MSP was competitive in international market. But since 1999-00 prices of FAQ rice in international market were almost constant, while MSP of rice was on hike. Therefore rice became non-competitive in international market from 1999-00. This phenomenon was continuing till 2004-05. In recent years rice prices in international market was almost stagnant in comparisons to MSP in India.

Figure 7.4: NPC of Rice-Exportable Hypothesis



7.3 Effective Protection Coefficient:

The effective protection of a commodity is an estimate of the extent to which the margin between its selling price and the cost of its internationally tradable inputs has been widened/narrowed by the combined effect of the protection of the commodity and the protection (which could be negative i.e. a subsidy) of the tradable inputs. In this study it is measured as the effective protection coefficient (EPC), which is defined as the ratio of the value added at domestic prices (i.e. the observed value added) of the production activity, to the estimated value added at reference prices.

Because they take account of the effects of the protection of internationally traded inputs as well as of the protection of the commodity itself, EPCs are more complete indicators of the incentives to producers resulting from trade policies, than NPCs. Estimating the EPC for a commodity requires information on the internationally tradable inputs used to produce it, and estimates of the nominal protection of these inputs. How this was estimated is discussed in details in the methodology.

For the principal cereals and some of the other crops, the shares of tradable inputs in the cost of production in each of the principal states are published in *Indian Agriculture in Brief*. For most crops it turned out that the principal tradable inputs are fertilizers, seeds and farm machinery. There are others, but with some exceptions they did not constitute a large enough share of production costs for their protection rates to make a noticeable difference to the effective protection estimates. For example, we did not consider for the protection of pesticides used in producing wheat and rice. The shares of the major inputs in production costs varied from year to year. For fertilizers, we used nominal protection estimate for wheat and rice⁷⁷. Tractors were the dominant component in the cost of farm machinery, and to represent farm machinery nominal protection we used estimates of tractor nominal protection

⁷⁷ Gulati (1990)

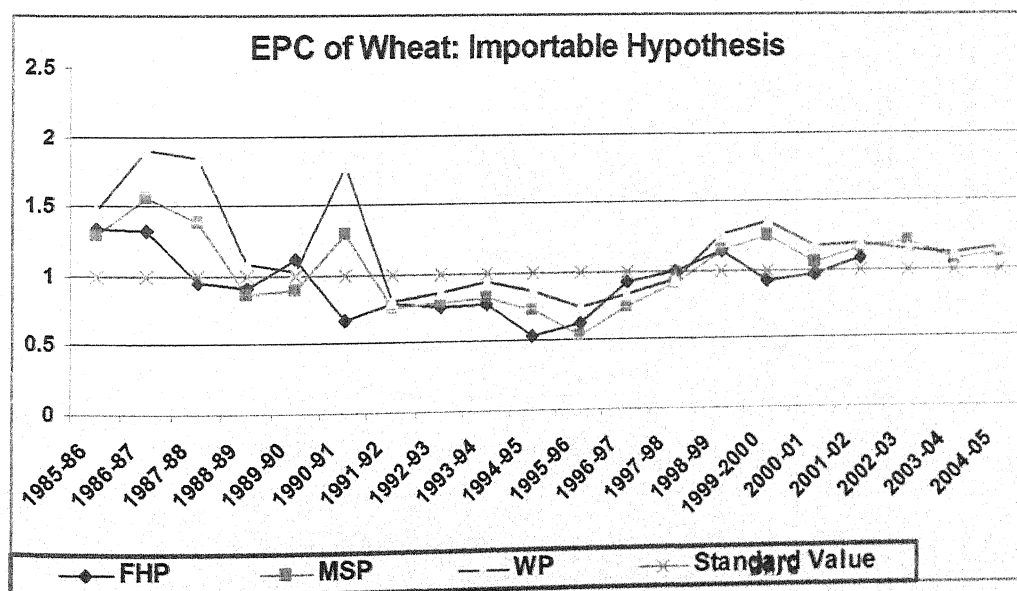
faced by farmers⁷⁸. However we were not able to obtain data on the cif prices of seeds in order to estimate seed nominal protection, and assumed that seed nominal protection was the same as the nominal protection of the particular crop.

7.3.1 EPC of Wheat - Importable Hypothesis:

Wheat in domestic market at FHP was non-competitive for most of the years since 1985-86 to 1989-90. However EPC for 1987-88 and 1988-89 was less than one, but it was very marginal to consider as fairly competitive. EPC was reasonably low from 1990-91 to 1997-98 due to low official estimate of FHP. It was 1.15 and 1.08 in 1998-99 and 2000-01. During rest of the years wheat was marginally competitive.

Wheat was highly non-competitive at MSP from 1985-86 to 1988-89. In 1989-90 EPC was slightly lower than one. In 1990-91 it was again non-competitive. Main reason behind this fluctuation was changes in price of wheat in international market.

Figure 7.5: EPC of Wheat-Importable Hypothesis



⁷⁸ G.D. Kalra and Ashok Gulati (1992)

From 1991-92 to 1997-98 value of ESC was less than one, indicating that it was competitive in domestic market for these years. But after 1997-98 till 2004-05 ESC was much higher than one under importable hypothesis. Thus data suggest that U.P.'s farmers were not in position to compete even in domestic market.

Table-7.3: Effective Protection Coefficient of Wheat

EPC-Wheat						
Year	Importable Hypothesis			Exportable Hypothesis		
	FHP	MSP	WP	FHP	MSP	WP
1985-86	1.338	1.29	1.48	1.5	1.46	1.52
1986-87	1.32	1.56	1.91	1.35	1.79	1.93
1987-8	0.95	1.39	1.85	0.98	1.56	1.87
1988-89	0.91	0.86	1.08	0.94	0.97	1.12
1089-90	1.12	0.9	1.02	1.15	0.99	1.09
1990-91	0.67	1.3	1.78	0.68	1.46	1.8
1991-92	0.79	0.76	0.81	0.83	0.67	0.87
1992-93	0.76	0.79	0.86	0.81	0.86	0.92
1993-94	0.77	0.82	0.94	0.82	0.92	1.04
1994-95	0.54	0.73	0.86	0.61	0.81	0.91
1995-96	0.63	0.53	0.74	0.66	0.58	0.78
1996-97	0.93	0.74	0.84	0.97	0.81	0.88
1997-98	0.99	0.91	0.94	1.02	0.96	0.98
1998-99	1.15	1.14	1.26	1.19	1.27	1.31
1999-2000	0.93	1.25	1.35	0.97	1.36	1.39
2000-01	0.96	1.06	1.18	1.1	1.16	1.24
2001-02	1.08	1.16	1.19	1.15	1.18	1.23
2002-03	**	1.21	1.14	**	1.19	1.21
2003-04	**	1.07	1.12	**	1.13	1.22
2004-05	**	1.11	1.16	**	1.18	1.32

Estimated EPC of wheat under importable hypothesis was higher than one from 1985-86 to 1990-91. Since 1990-91 wheat prices in international market slightly increased, and whole sale prices in Uttar Pradesh too was increasing, but not with same pace. Therefore it became marginally competitive from 1991-92 to 1997-98. Devaluation of Indian currency was also assumed a contributing factor for this change. However competitiveness of wheat in domestic market, was ruined from 1997-98 till 2004-05. Figure 6.5 clearly reveals that wheat is non-competitive from 1998-99 to 2004-05 barring 1999-00 and 2000-01, when EPC was less than one at FHP.

7.3.2 EPC of Wheat - Exportable Hypothesis:

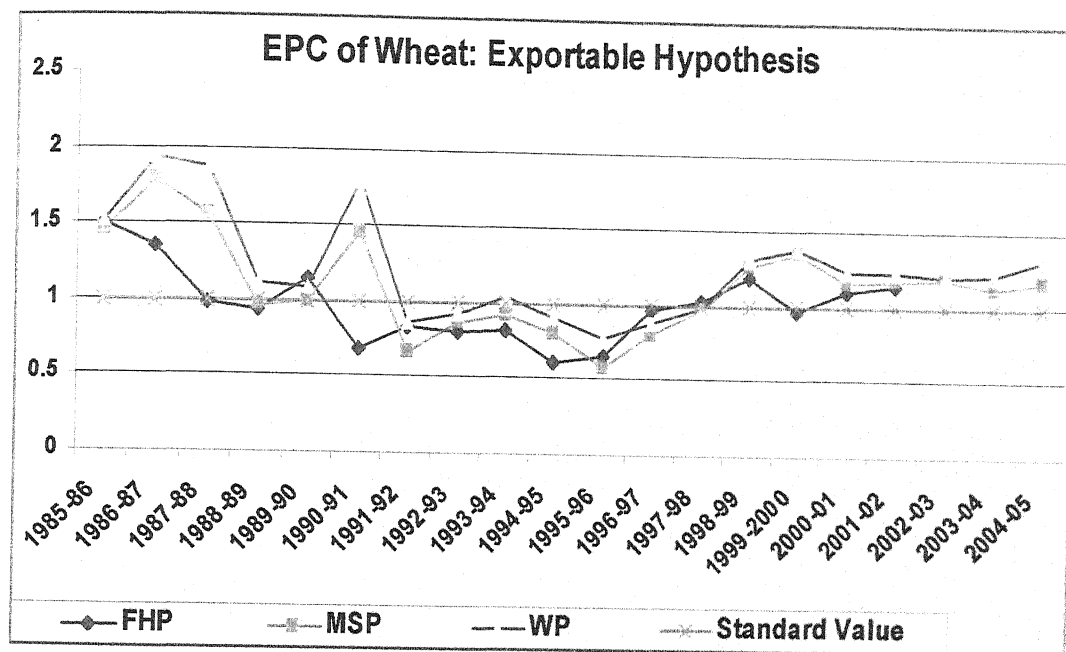
Under exportable hypothesis EPC was either higher than unit or near to unit value from 1985-86 to 1989-90. Fluctuations were registered from 1990-91 to 1996-97 in value of EPC, but wheat was always competitive in international market for these years. Since 1997-98 FHP of wheat increased and therefore it had lost its competitive edge in international market. This situation was continued till 2001-02, barring 1999-00 when it was 0.97, but it was an insignificant lead.

Under exportable hypothesis the extent of non-competitiveness was higher than domestic market. From 1985-86 to 1990-91 wheat was non competitive excepting 1988-89 and 1989-90. State farmers marginally were in advantage regarding competitiveness for next few years from 1990-91 to 1997-98. In view of the fact that wheat prices in international market sharply knocked down, wheat became non competitive for rest of the study period from 1998-99 to 2004-05. Recent trend of international prices and MSP suggest that the present situation will not easily improve in near future.

EPC under exportable hypothesis follows the same trend. Value of EPC was higher than for most of the years. It implies that U.P.'s wheat was non competitive in international market during the study period. ESC for these years was much higher than unit. Figure 6.6 shows that there were declining

trend in EPC from 1985-86 to 1991-92, where as it started increasing again from 1997-98.

Figure 7.6: EPC of Wheat-Exportable Hypothesis



7.3.3 EPC of Rice - Importable Hypothesis:

Rice was fairly competitive in domestic and international market. EPC of rice at FHP was less than one over a long time during study period. From 1985-86 to 1998-99 it was less than unit with high fluctuation. It was near to unit value in 1987-88, 1996-97 and 1998-99. Since 1998-99 increase in FHP resulted in higher value of EPC. It was more than one in 1999-2000 and 2000-01 showing non-competitiveness of rice in domestic market for these years. MSP of rice in 1990's was much lower than international prices of FAQ rice, so rice was competitive under importable hypothesis. MSP of rice increased over the years. As a result, rice turned into non competitive in international market from 1996-97 onwards till 2004-05.

EPC of rice at whole sale prices under importable hypothesis reflects that rice was reasonably competitive in domestic market in initial years with the

exception of two years of 1988-89 and 1989-90. The trend of prices in international market and whole sale prices in domestic market shows that there were nominal differences in growth rate of prices. But after 1999-00 international prices of Thai rice was almost stagnant, while whole sale prices in domestic market was rising. In effect, the value of EPC became higher than unit for 1999-00 and 2001-02. In other words U.P.'s rice became non-competitive in domestic market. Since increase in prices was continuing, competitiveness of rice in domestic markets seems not to be improved in near future also. It is evident from figure 6.7, that rice became non-competitive in international market from 1995-96 and after that EPC never turned down.

Figure 7.7: EPC of Rice-Exportable Hypothesis

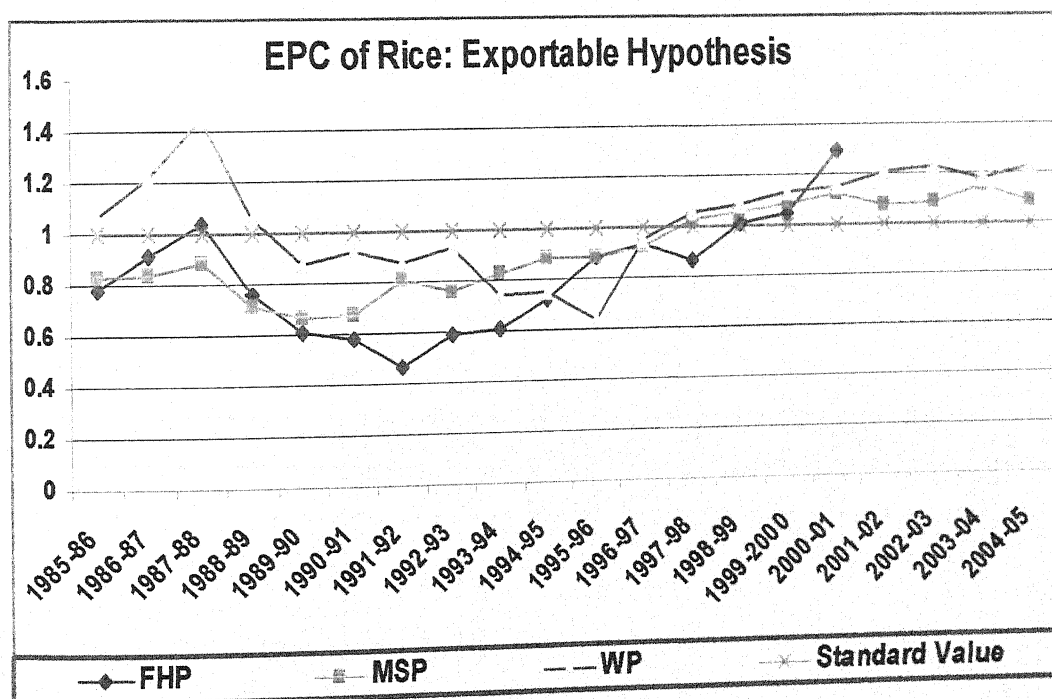


Table-7.4: Effective Protection Coefficient of Rice

Year	EPC-Rice					
	Importable Hypothesis			Exportable Hypothesis		
	FHP	MSP	WP	FHP	MSP	WP
1985-86	0.69	0.79	0.98	0.78	0.83	1.07
1986-87	0.78	0.79	1.11	0.91	0.84	1.22
1987-8	0.92	0.82	1.31	1.04	0.89	1.45
1988-89	0.67	0.63	0.95	0.76	0.71	1.06
1089-90	0.54	0.61	0.79	0.61	0.67	0.88
1990-91	0.41	0.74	0.84	0.58	0.68	0.92
1991-92	0.49	0.71	0.61	0.47	0.81	0.88
1992-93	0.58	0.77	0.77	0.59	0.76	0.93
1993-94	0.69	0.81	0.66	0.61	0.83	0.74
1994-95	0.68	0.83	0.59	0.72	0.89	0.75
1995-96	0.84	0.85	0.59	0.89	0.89	0.64
1996-97	0.92	1.02	0.69	0.93	0.92	0.95
1997-98	0.82	1.03	0.72	0.87	1.03	1.06
1998-99	0.98	1.02	0.89	1.01	1.06	1.09
1999-2000	1.01	1.03	1.01	1.05	1.09	1.13
2000-01	1.07	1.06	1.06	1.3	1.12	1.15
2001-02	**	1.02	1.12	**	1.08	1.21
2002-03	**	1.03	1.08	**	1.09	1.23
2003-04	**	1.08	1.12	**	1.15	1.18
2004-05	**	1.02	1.16	**	1.09	1.23

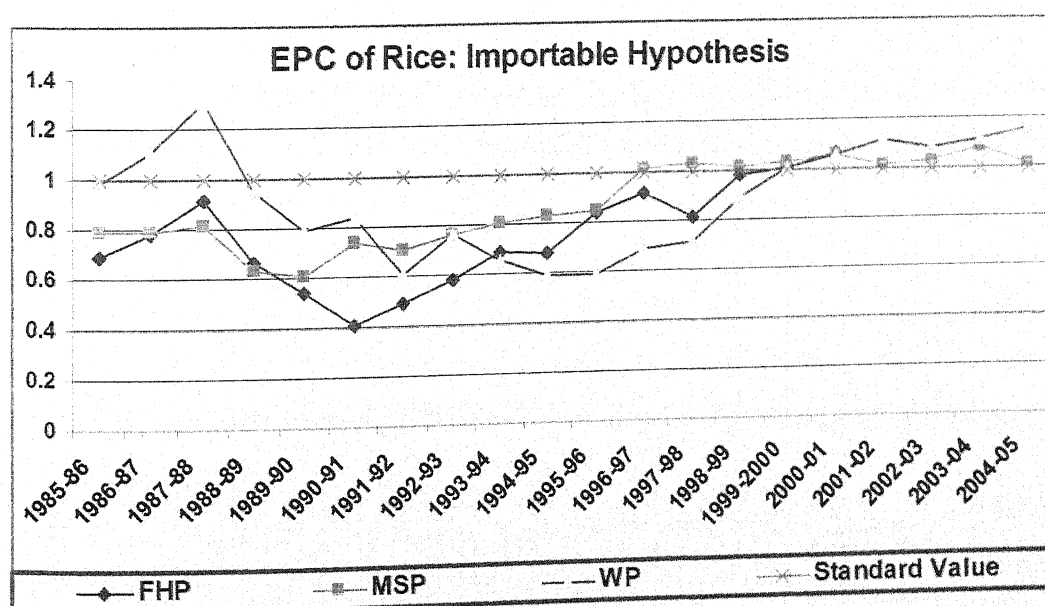
7.3.4 EPC of Rice - Exportable Hypothesis:

Rice at FHP was competitive in international market. The trend of fluctuation in EPC value was same under exportable hypothesis. It was non-competitive in 1987-88. Comparing to domestic market it turned non-competitive from 1998-99, i.e. one year earlier than that of importable hypothesis.

Value of EPC of rice at MSP reflect that rice was competitive in international market from 1985-86 to 1995-96. But due to stagnant prices in international market and increasing cost and price of rice in Uttar Pradesh, rice turned non-competitive from 1996-97 to 2004-05. Since there is hardly any possibility to decrease in MSP hence there is a thin chance that rice may again become competitive at given international prices.

EPC of rice at WP under exportable hypothesis shows that U.P.'s rice was non-competitive in international market. In initial years difference in rice prices regarding competitiveness in international market and domestic market was in favour of domestic producers. Nevertheless from 1999-00 whole sale prices of rice in state was on rise while at the same time international prices of rice was almost stagnant, which made U.P.'s rice non-competitive in international market. This development was prolonged from 1999-00 to 2004-05. It is reflecting that development in international foodgrains market and price movement in international and domestic markets are detrimental to our farmers. As it is evident from figure 6.8 that after 1995-96 EPC was near to one, but it was never competitive in this period.

Figure 7.8: EPC of Rice-Importable Hypothesis



7.4 Effective Subsidy Coefficient:

In India, farmers receive subsidies in various forms, and in addition are exempt from any direct income taxes. The fertilizer subsidy is one of the largest, and that is treated in the estimation of the nominal protection coefficient of fertilizers and captured in the effective protection coefficient of the individual commodities. Apart from this, there are three other major subsidies, two on non tradable inputs, canal irrigation water and electricity principally used for pump sets, and subsidized credit. A number of the studies include extensive discussions of the methods used to estimate these subsidies, and there is also a considerable body of empirical research on this subject that built on these original estimates. These subsidies are in the first instance quantified by estimating effective subsidy coefficients (ESCs). The ESC is simply the numerator of the effective protection coefficient plus the total subsidies per unit of the commodity, divided by value-added in reference prices i.e. by the effective protection denominator. The rationale for the ESC concept is that the subsidy per unit of the commodity is treated *as if* it is equivalent to an increase in the price of the commodity. For example, if the combined value of the subsidies on irrigation water, electricity and credit is equivalent to 10 percent of the domestic selling price of the commodity, the ESC pretends that the same incentive effect to the farmer would result from a 10 percent increase in his selling price. The largest non-traded subsidies are generally received by crops grown in irrigated areas.

7.4.1 ESC of Rice - Importable Hypothesis:

Considering subsidies provided to farmers in international and domestic market, ESC at FHP was quite high. Therefore wheat was non-competitive in domestic market from 1997-98 to 1990-91. From 1991-92 to 1997-98, ESC of wheat was marginally competitive. It again became non-competitive in 1998-99 till 2001-02.

Subsidies in India are much debated and sensitive issues. Government in India has continuously been reducing subsidy to farm sector under pressure of international development agencies. But incentive indicators considering subsidies, clearly put forward that Indian farmers are not competitive even in terms of subsidies.

ESC of wheat was higher than one from 1985-86 to 1987-88. After that barring 1990-91, it was slightly lower than unit till 1997-98. However competitive lead was very marginal in 1997-98. Later, value of ESC continuously increased, so wheat became non-competitive under importable hypothesis for rest of the years from 1998-99 till 2004-05

ESC of wheat at WP under exportable hypothesis was too high at a certain extent to assert it non-competitive for entire study period (i.e. 1985-86 to 2004-05). However, it was 0.91 and 0.94 in 1991-92 and 1992-93. Again it was less than unit for 1993-94 to 1995-96. Keeping in view the trend value of NPC, it was insignificant to consider as competitive for a long period. As figure 6.9 reveals wheat was competitive in domestic market for a very short period from 1991-92 to 1996-97, but rest of the years it was non competitive.

Figure 7.9: ESC of Wheat-Importable Hypothesis

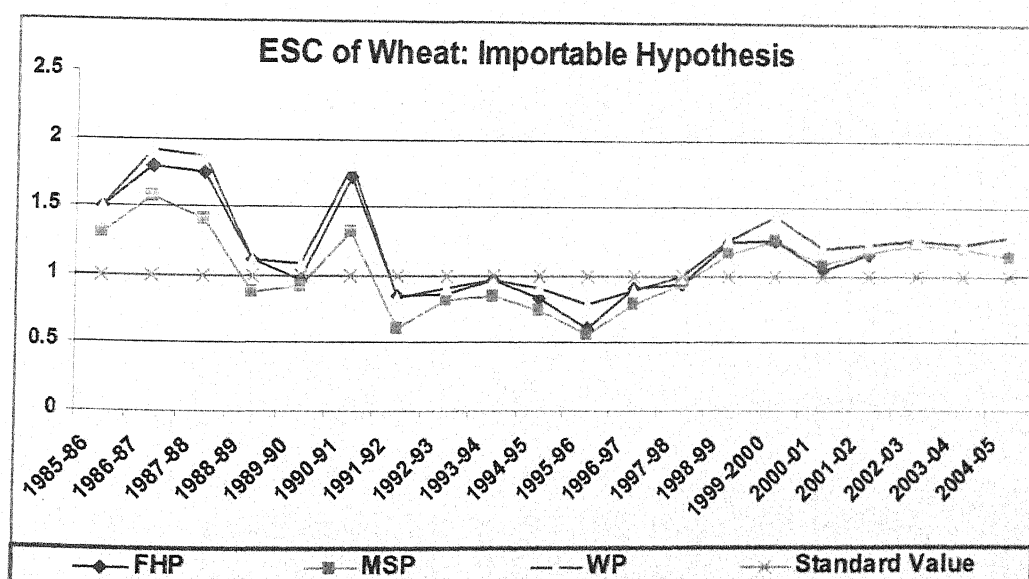


Table-7.5: Effective Subsidy Coefficient of Wheat

ESC-Wheat						
Year	Importable Hypothesis			Exportable Hypothesis		
	FHP	MSP	WP	FHP	MSP	WP
1985-86	1.51	1.31	1.51	1.54	1.49	1.54
1986-87	1.8	1.57	1.92	1.82	1.8	1.96
1987-8	1.75	1.41	1.87	1.77	1.56	1.91
1988-89	1.12	0.88	1.12	1.15	0.99	1.18
1089-90	0.96	0.93	1.08	0.99	1.03	1.12
1990-91	1.73	1.32	1.81	1.74	1.47	1.85
1991-92	0.85	0.61	0.84	0.87	0.68	0.91
1992-93	0.86	0.82	0.91	0.88	0.91	0.94
1993-94	0.96	0.85	0.96	0.98	0.95	1.02
1994-95	0.84	0.75	0.91	0.89	0.82	0.94
1995-96	0.61	0.56	0.79	0.65	0.61	0.81
1996-97	0.91	0.79	0.89	0.93	0.84	0.92
1997-98	0.94	0.94	0.99	0.98	1.02	1.04
1998-99	1.25	1.16	1.27	1.27	1.23	1.32
1999-2000	1.26	1.26	1.44	1.21	1.38	1.46
2000-01	1.04	1.09	1.21	1.11	1.18	1.25
2001-02	1.16	1.18	1.24	1.21	1.23	1.29
2002-03	**	1.24	1.27	**	1.31	1.27
2003-04	**	1.21	1.24	**	1.25	1.29
2004-05	**	1.15	1.29	**	1.27	1.34

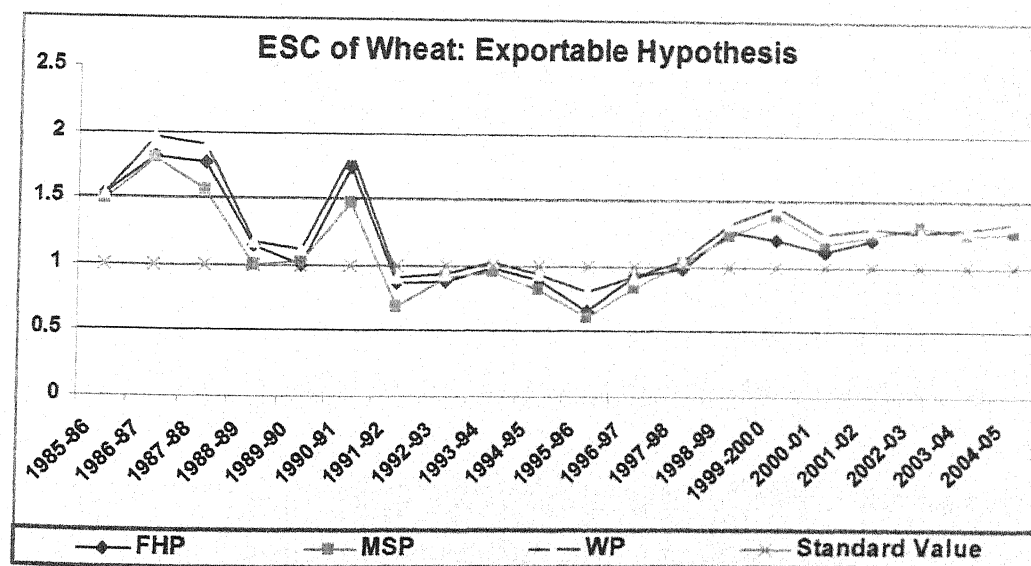
7.4. 2 ESC of Whet - Exportable Hypothesis:

Under exportable hypothesis wheat at FHP was non-competitive for most of the years. Value of ESC was less than one from 1991-92 to 1998-99, but competitiveness for international market was very marginal for these years. After 1998-99 wheat became non-competitive for rest of the years till 2001-02. Under exportable hypothesis wheat was non-competitive for most of the years. Value of ESC was much higher than unit from 1985-86 to 190-91. However it

was 0.99 in 1989-90, but it was a marginal value to consider it competitive. Wheat at MSP was competitive in international market for few years from 1991-92 to 1996-97. The value of ESC was very marginal, especially in 1992-93 and 1993-94. From 1997-98 international prices of wheat was on stagnation, while MSP was on escalation. Therefore wheat became non-competitive for international market from 1998-99 till 2004-05.

ESC of wheat at Whole sale prices reflects that wheat was a highly non competitive commodity for U.P.'s farmers under both importable and exportable hypothesis. However it was marginally competitive in some years during 1997-98 to 1998-99 under importable hypothesis. However under exportable hypothesis wheat was consistently non-competitive. It was fairly competitive in 1995-96 and again in 1995-96 to 196-97 when there was negligible change in domestic whole sale wheat prices. Otherwise value of ESC was always higher than unit, indicating the non-competitiveness of U.P.'s wheat in international market. To sum up, it is clear from figure 6.10 that keeping in view of subsidies in consider farmers of Uttar Pradesh was never competitive in international market at any variant of price except during 1994-95 to 1996-97.

Figure 7.10: ESC of Wheat-Exportable Hypothesis

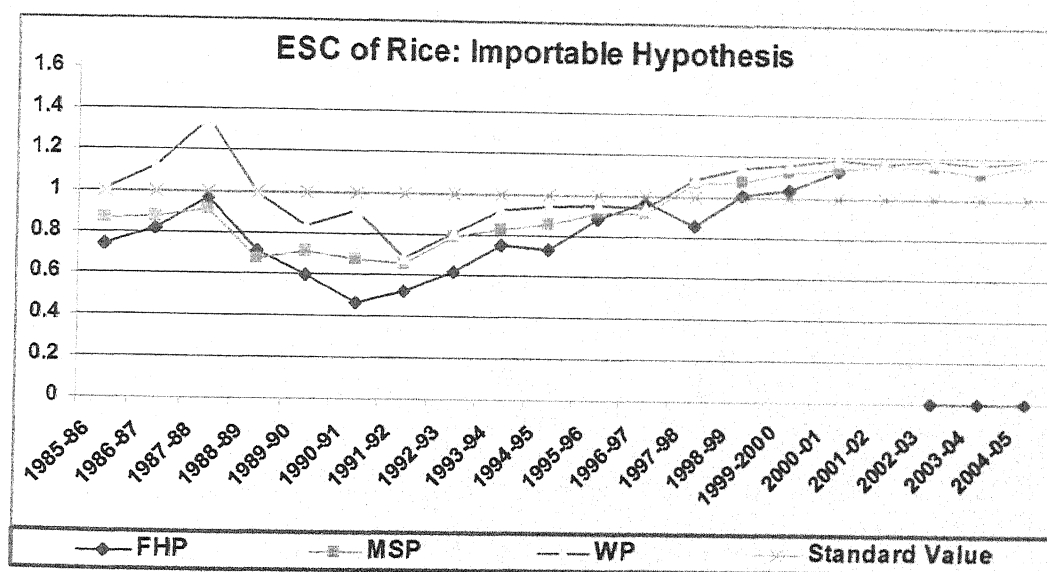


7.4.3 ESC of Rice - Importable Hypothesis:

Value of ESC for rice at FHP was less than one for most of the years of study period. It was highly competitive in domestic market from 1985-86 to 1997-98. After that there was increase in value as well as in FHP of rice in domestic market. However, value of ESC was marginally higher than unit but it was a sustained phenomenon and ESC increased since 1998-99.

Value of ESC of rice at MSP from 1985-86 to 1996-97 suggest that rice was reasonably competitive in domestic market during these years. After that ESC value escalated due to hike in MSP. In effect rice became marginally competitive in 1998-99 and non-competitive after this year.

Figure 7.11: ESC of Rice-Importable Hypothesis



Keeping in view the subsidies provided to domestic farmers and their counterpart in international market the ESC of rice at wholesale prices illustrates that rice was non-competitive from 1985-86 to 1987-88. Narrowing differences in international and domestic prices makes it marginally competitive in 1988-89. Since then till 1998-99, it was quite competitive in domestic market. After that whole sale prices in domestic market increased sharply, therefore rice became non-competitive in domestic market. It is apparent from figure 6.11 that

even though being an efficient producer, in recent past ten years, U.P.'s farmers were never competitive in domestic market.

Table-7.6: Effective Subsidy Coefficient of Rice

ESC-Rice						
Year	Importable Hypothesis			Exportable Hypothesis		
	FHP	MSP	WP	FHP	MSP	WP
1985-86	0.74	0.87	1.01	0.81	0.91	1.08
1986-87	0.82	0.88	1.12	0.95	0.94	1.18
1987-8	0.97	0.91	1.35	1.07	0.96	1.43
1988-89	0.71	0.68	0.99	0.81	0.74	1.04
1989-90	0.6	0.71	0.84	0.65	0.78	0.92
1990-91	0.47	0.68	0.91	0.62	0.73	0.97
1991-92	0.52	0.66	0.69	0.51	0.73	0.72
1992-93	0.62	0.79	0.81	0.56	0.84	0.89
1993-94	0.75	0.83	0.92	0.53	0.81	0.87
1994-95	0.73	0.86	0.94	0.63	0.89	0.69
1995-96	0.89	0.91	0.95	0.66	0.91	0.95
1996-97	0.97	0.91	0.94	0.77	0.94	0.98
1997-98	0.86	1.07	1.09	0.92	0.91	0.95
1998-99	1.01	1.08	1.14	0.98	1.01	1.11
1999-2000	1.04	1.12	1.16	0.92	1.12	1.14
2000-01	1.13	1.14	1.19	1.07	1.18	1.26
2001-02	**	1.16	1.17	**	1.19	1.21
2002-03	**	1.15	1.19	**	1.21	1.26
2003-04	**	1.12	1.17	**	1.19	1.23
2004-05	**	1.17	1.19	**	1.21	1.26

7.4.4 ESC of Rice - Exportable Hypothesis:

There was high fluctuation in FHP of rice, which affected competitiveness in domestic and international market. Rice was non-competitive in 1987-88 and 1998-99 to 2000-01. It was moderately competitive for rest of the years. Since

FHP of rice was highly fluctuating, competitiveness for some years (i.e. 1986-87 and 1997-98) was very marginal.

Under exportable hypothesis rice was competitive for a long time of study period. Value of ESC was lower than one from 1985-86 to 1996-97. The competitiveness was very marginal during 1985-86 to 1987-88. It was evidently at advantage due to price hike in international market. Increase in MSP increases in ESC; consequently rice became marginally competitive in 1995-96 and 1996-97. Later, it became non-competitive in international market as value of ESC for rice at MSP became higher than unit. ESC value was too high to be competitive under exportable hypothesis from 1997-98 to 2004-05.

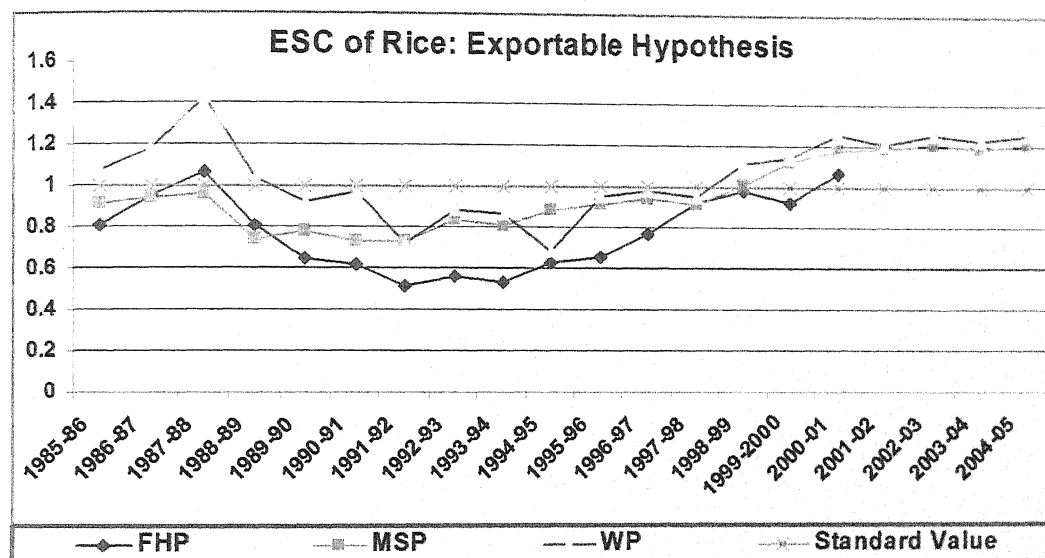
Competitiveness of rice at whole sale prices in international market was not good. Value of ESC was more than one from 1985-86 to 1989-90. It was marginally competitive in 1989-90 and 1991-92. From 1991-92 rice became fairly competitive. Sharp increase in whole sale prices of rice especially from 1998-99 reflected in ESC. As the value of ESC was more than unit from 1998-99 to 2004-05 showing that rice was non-competitive in international market.

Under exportable hypothesis competitiveness scenario was quite different. NPC was higher than one in early years of 1985-86 and 1988-89. Since then, U.P.'s rice at whole sale prices was competitive in international market as NPC was less than unit. This trend continued till 1998-99. Competitive advantage became marginal in 1999-00 because whole sale prices of rice were increasing. Due to this phenomenon of price hike rice turned non-competitive commodity for rest of the study period from 2000-01 to 2004-05. Figure 6.12 buttress the fact that from 1990-91, value of ESC at all three variant prices of rice was continuously on rise. However, it was competitive till 1997-98 but trend was unfavourable to domestic producers. After 1997-98, it clearly became unfavourable for U.P.'s farmers to compete in international market.

Different incentive indicators of wheat and rice show that farmer of Uttar Pradesh was not in position to compete, especially in international market. However, they were competitive to a little extent in domestic market at FHP and

MSP for some years. Competitiveness was favourable for rice in comparison to wheat. But this competitive advantage eroded at whole sale prices, which was a comparatively genuine price to compare competitiveness, because practically trades were referred on these prices.

Figure 7.12: ESC of Rice-Exportable Hypothesis



Competitiveness of these agricultural commodities depends on variety of factors. Prices are dominant of those aspects. Trades are being governed by different set of factors in new international economic regime. The evolution of WTO have brought some unconventional issues on the front of debate. Apart from comparative advantage subsidies and tariffs are the two most important factors, which are directing the international trade; especially agricultural trade. Subsidies and tariffs both are much higher in developed countries. Tariff rates for most agricultural commodities in India were low or zero in the early 1990s, largely because quantitative restrictions on imports rendered tariffs irrelevant, and also because world prices were substantially higher than Indian prices over that period. Subsequently, and especially after 2000, tariff rates have generally been brought down, and (except in the case of Soya bean) have been significantly below the bound tariffs. What is possibly even more significant,

however, is that tariff rates have been relatively stable, despite tremendous volatility in world trade prices, so that Indian agriculturalists effectively had to deal with all the volatility of world prices. This meant that even as the uncertainties related to international price movements became more directly significant for farmers, progressive trade liberalization and tariff reduction in these commodities made their market relations more problematic.

Government policy did not adjust in ways that would make the transition easier or less volatile even in price terms. Thus, there was no evidence of any co-ordination between domestic price policy and the policies regarding external trade and tariffs. For example, an automatic drawback perspective and transparent policy of variable tariffs on both agricultural imports and exports linked to the deviation of spot international prices from their long-run desired domestic trends would have been extremely useful at least in protecting farmers from sudden surges of low-priced imports, and consumers from export price surges. Such a policy would prevent delayed reactions to international price changes which allow unnecessarily large private imports. It would therefore have allowed for some degree of price stability for both producers and consumers, which is important especially in dominantly rural economies like that of India. In the absence of such minimal protection, Indian farmers had to operate in a highly uncertain and volatile international environment, effectively competing against highly subsidised large producers in the developed countries, whose average level of subsidy amounted to many times the total domestic cost of production for many crops.

Also, the volatility of such prices – for example in cotton – has created uncertain and often misleading signals for farmers who respond by changing cropping patterns. It has directly affected Soybean and groundnut farmers due to palm oil imports. Import of fruits and other commodities also affected the farmers. With increased trade liberalization, reduction in cereal consumption became very pronounced. Also exports of items like cotton have increased volatility in supplies of cotton raw material, which have adversely affected hand loom and

power loom weavers whenever yarn prices have increased significantly due to export of cotton.

To encapsulate, competitiveness of agriculture is a multidimensional matter of concern. In present international arena trade is governed by political interests as well as economic. Therefore to be stand in international market have need of policy interventions beyond the stable prices. Undoubtly to stand parallel to international agriculture, Indian agriculture seeks some institutional support from state at this juncture of globalisation. In purview of WTO if we really need to compete in international market especially in agriculture we have to be prepared both at domestic and international front.



Chapter Eight

Conclusion and suggestion



Conclusion and suggestion

Agriculture in India is still important sector of economy, as it is the backbone of economic life of masses. Agriculture is a state subject and therefore development of agriculture largely depends on the ability and willingness of state government to invest in agriculture. But the role of the central government is also crucial not only in terms of resource transfer to the state but also in formulation of macro economic policies that directly or indirectly affect agriculture. It may be significant to note that there are certain things that are beyond control of state government. For instance, the policies relating to agricultural prices, export, import and tariffs that affect domestic agriculture are framed by central government. Therefore the role of both the governments is critical for agricultural development.

Planning framework for agricultural development introduced in 1951, enabled the mobilization of resources and their investment in basic rural infrastructure like irrigation, rural electrification, road and communication, research and extension. In 1965-66 the new strategy for almost stagnant agricultural sector had been adopted to achieve the objective of self sufficiency. The strategy was based on new variety of seeds, sufficient use of water for irrigation, fertilizers, machinery and other inputs and new technologies. This laid the basis for the gradual modernization of agriculture, accelerating dramatically the growth rate of yield and agricultural output. After that for a long period the agriculture sector was reign by contemporary policies made for other sectors.

India had started the economic reform process in 1985 and the pace of this development became speedy from 1991. During this reform process many macro economic and sectoral policies were put in place. Basic reform was introduced particularly in the industrial and trade policies. But similarly far reaching changes have not been introduced in the agriculture sector. The

approach in this regard was, apparently cautious and gradual because reforms in the agriculture sector have important and far reaching implication not only for agricultural growth but also for food security, employment generation, and poverty alleviation. But the structural adjustment programme and other policies acknowledged as economic reforms have affected agriculture sector to a large extent.

The direct impact of reform measures on domestic agriculture was evident after mid 1990s, particularly with the commencement of the WTO in 1995. Since then, Indian agriculture has been subjected to a number of policies changes; such as reduction in import duties on agricultural products, removal of minimum export prices, lifting of quantitative restrictions on agricultural products, entry of direct foreign investment in food processing and marketing up to 100 percent equity, direct involvement of corporate sector in highly capital intensive farming, private sector participation in Research and Development (R&D), technology transfer, extension and marketing, changes in law of tenancy and leasing of land in order to achieve economies of scale, rationalization of stamp duties on agricultural land transactions, and promotion of contract farming. All these policy changes have impacted our farmers and farming process. Some major changes have taken place during this period i.e.; crop productivity has witnessed decelerated growth. Employment generation in agriculture became almost zero, farm mechanism and technological changes in agriculture increased the cost of cultivation and reduced the employment opportunities in the farm sector. Public investment in agriculture, irrigation, rural development and the social sector has significantly been reduced. Unfortunately these changes related to policies and their implications moved in opposite direction and created crisis for farm sector.

The present crises have not occurred in a day, but are result of gradual shift in preferences of policies. Therefore the present predicament cumulated over time has become so rampant that farming community is now realising that they can not survive alone on the basis of agriculture. NSSO's data of 59th round survey

reveals the situation that, 24% of UP farmers (27% at all India level) did not prefer farming and felt that agriculture is not profitable. In all 41% farmers in UP (40% at all India level) felt that, given a choice, they would take up some other career as a source of livelihood. This indicates a serious problem wherein the main protagonist is suffering from low self esteem and does not believe that what he is doing is worthwhile economically. The survey conducted for this study also reveals that most of these farmers (76%) were engaged in farming to fulfil their own food demand. A large number of small and marginal farmer perceive that it was only the agriculture by which they could meet their demand of family needs. It has been brought forward that almost one forth (23%) small and marginal farmer's households food demand were unmet and only few farming household families⁷⁸ were self sufficient for their food requirements. However their self sufficiency was partial, because generally they were producing foodgrains only, and even a little catastrophe can disturb there overall food security.

However in past fifteen years, many policies has been put forwards to diversify the state agriculture and increase the income of farmers especially small and marginal but these policies and practices are not realised at ground level. Even though a number of policy has been implemented but the survey data expose that foodgrain crops i.e. wheat (86%), rice (79%), and pulses (64%) are the most preferred crops among small and marginal farmers till now due to their own food requirements. Whereas sugarcane, sunflower, mint etc. were low on list. Predilection of large farmers was some different. Sugarcane (89%), oilseeds (84%), than rice (82%) were on preferences. Coarse grain (16%) and vegetables (19%) was least chosen crop from the large farmers. It depicts that the said gains (although it is very decimal) is accruing to only resource rich and big farmers. However they are bearing higher production costs in comparison to small and marginal farmers. As the survey brought forward the fact that large farmer spends three times more on seeds, pesticides and on machinery. They

⁷⁸ percent of small and marginal farmer's households

also spend more on fertilizers (7%), irrigation (3%) and machines (4%) in comparison to small and marginal farmers. Whereas small and marginal farmer bears a major part of their cost (14%) on imputed wages of own labour. Beside this the other major head was rent of land especially for those who cultivated on leased farms. It was as high as up to 20 percent. Usually the rent was paid in form of final produce. Hence only 80 percent produce was perceived as actual production, which was divided between land owner and rentier as adhiya (equal share). Thus the actual cultivator gets only 40 percent of final produce for bearing all the variable cost and risks. This results in negligible marketable surplus by this category of farmers.

It has emerged from the survey data that small and marginal farmers are more efficient than large farmers but constrained by their farm size and own food demands small farmers had lowest (39.03%) marketable surplus among different farmers categories for sell in market. It also refers that medium category of farmers had largest marketable surplus (49.55%) not large farmers (41.06%)⁷⁹, which is a general perception. Medium and large farmers are main producer of marketable surplus. Since this category of farmers used advance machines, capital intensive inputs and farming techniques, therefore they bears higher cost of production resulting in higher price, which leads rise in price of their marketable surplus.

A rise in agricultural prices also has accentuated inequalities among the various categories of farmers, as the surplus farmers, with a developed resources base and capabilities of responding easily and quickly to price signals, would accrue only to this category of farmers and inter personal inequalities have increased. This dilution of promotional policies like special plan schemes for small farmers and differential subsidies provided to them on credit and other agricultural inputs would have serious adverse effects on the growth prospects of millions of small and marginal farmers. In result, even though being an efficient producer, due to biased guiding principles towards big farmers and highly

advanced technological farming, small and marginal farmers are unable to take the opportunities provided by the contemporary policies.

These phenomena are clearly challenging and seek some immediate corrective measures to overcome the situation. The policy makers will have to realise that small and marginal farmers are backbone of agriculture sector and any policy move towards market integration could not ignore this vulnerable but important contributor of agriculture sector. These challenges to farming community are not only overlooked in policy initiatives at domestic front but also on international front.

At the international front compliance of domestic agriculture policies with WTO's Agreement on Agriculture are the main policy development, which is affecting the agriculture sector, irrespective of size of farm, crops and regions but small and marginal farmers are most affected due to already being vulnerable, increasing cost of cultivation and instability of market.

India has joined the WTO from its inception in 1995, which resulted in several challenges to Indian agriculture. The liberalization of Indian agriculture during the early nineties gave increasing hope to the agriculture sector. The policy makers who initiated the process argued that the opening up of the economy combined with steep devaluation of the currency would go a long way in remedying the age old discrimination against tradable agriculture and would bestow immense benefits to this sector through increased export. It was argued that the WTO's AoA would be instrumental in promoting multilateralism and in increased agricultural exports of developing countries. But these policies (AoA) adversely affected the agriculture sector. However it was prior suggested that trade liberalization would undermine the objective of self sufficiency in food production and could expose risk of excessive price fluctuations, jeopardizing the food security of developing countries. Now it can be clearly seen that different clauses of WTO's AoA are posing threat to indigenous farming system of India and other developing countries. For example the WTO's TRIPS is detrimental to the development of indigenous R&D in agriculture and has

seriously diminished the effectiveness of agricultural research infrastructure, so assiduously built over the years. This has serious implications for the future growth of agriculture but all these worries were ignored.

At present juncture, now seventeen years after the beginning of economic liberalization in India and twelve years after joining the WTO, instead of experiencing an unprecedented boom in growth, the agricultural sector is facing serious crisis. As seen earlier during the nineties the growth rate in agriculture has visibly decelerated both at the state and all India level. After high growth during nineties export growth of agricultural commodities has not taken place, partly due to deceleration in world trade, and also because of declining competitiveness of agricultural commodities. The continuous rise in agricultural prices has resulted in reducing competitive edge.

One of the most important factors for the lack of expected surge in export is because of huge domestic and export subsidies given by developed countries combined with restricted access to developing countries' export through high tariff and application of discriminatory Sanitary and Phytosanitary (SPS) policies. However it is now being belatedly but at least realised that AoA of WTO is an unequal treaty heavily biased towards the developed countries. While it forced the developing countries to open their agriculture sector, the agreement fail to provide the expected market access to the developing countries. The agreement contains numerous unequal terms to the disadvantage of developing countries and has exposed them to serious challenges.

These developments has destabilized and accelerated the already volatile nature of international market of agricultural commodities, international prices fluctuations and declining international prices. In result many agricultural commodities have become uncompetitive, which adversely affected the Indian exports. For example, wheat prices in international market, which were hovering nearly US \$ 140-150 per tons in 1995-96, is now as low as US \$ 90. the perceptible decline in international prices since 1995-96 is not only due to

cyclical factors but also because of the continuation of very high subsidies being given by developed countries to their agriculture in general and export in particular. Most important, India is losing competitiveness also because of very steep rise in cost of production due to increasing input prices, which resulted in high domestic prices.

These declines and loss of competitiveness is observed through different incentive indicators and measures of competitiveness i.e. NPC, EPC and ESC, which has been calculated on different variant of prices as the part of this study. Result of protection coefficients shows that Wheat and Rice, both commodities were competitive for Uttar Pradesh on different variants of prices till early nineties. As the NPC, EPC and ESC of wheat under importable hypothesis were generally less than one from 1990 to 1996-97. However, competitiveness was higher in order NPC>EPC>ESC. Under exportable hypothesis wheat was competitive but in less extent in comparison to importable hypothesis. In case of rice, it was moderately competitive in domestic (importable hypothesis) and international (exportable hypothesis) markets as the value of NPC, EPC and ESC was below one from 1986-87 to 1998-99. However the competitiveness was higher in domestic market than in international competitive market.

Albeit the study period is stretched from 1985-86 to 2004-05 but FHP of wheat of and rice are available only from 1985-86 to 2001-02, therefore incentive indicator at FHP has been calculated for these years. NPC of wheat at FHP under importable hypothesis had a fluctuation trend. It was more than unit in 1985-86 and 1986-87. After that it was lower than one except two years of 1989-90 and 1998-99. It follows MSP was the same trend at from 1985-86 to 1987-88. From 1991-92 to 1997-98 wheat at MSP was rather competitive. With respect to WP, under importable hypothesis, wheat was non-competitive for most of the years. Value of NPC was more than unit from 1985-86 to 1990-91 except for 1989-90, when it was less than one, but so far element of competitiveness is concerned it was marginal. Under exportable hypothesis indicate wheat at FHP in international market from 1985-86 to 1990-91 was

more than one, showing non competitiveness of wheat in international market. It was same at MSP, for most of the study period. Although NPC at whole sale prices was lower than one for these years, we can not say that it has a cutting edge advantage as the value of NPC was only slightly lower than unit.

India is among the largest rice exporter in world and Uttar Pradesh is a major contributor of this pool. Export of rice is subject to quality, size, fragrance etc. Basmati rice, a long size fragrant variety of rice has a good reputation in international market. But there is also a sizeable demand of non basmati rice in international market, especially in South Asia. Value of NPC at FHP indicates that rice was reasonably competitive in domestic market over the study period. The whole sale prices of rice in Uttar Pradesh were quite low in study period regarding competitiveness in domestic and in international market. NPC at whole sale prices under importable hypothesis suggest that U.P.'s rice was competitive in domestic market from 1985-86 to 2001-01, but it became non-competitive in domestic market from 2000-01 to 2004-05. However, rice was fairly competitive in international market (in exportable hypothesis) from 1985-86 to 1996-97, but started decelerating from 1997-98 and got completely eliminated in next two years. Rice at MSP under exportable hypothesis was competitive as the value of NPC was less than one from 1985-86 to 1998-99. NPC of rice at WP suggests that there were fluctuating trend regarding competitiveness of rice in international market.

The effective protection of a commodity is an estimate of the extent to which the margin between its selling price and the cost of its internationally tradable inputs has been widened/narrowed by the combined effect of the protection of the commodity and the protection (which could be negative i.e. a subsidy) of the tradable inputs. In this study it is measured as the effective protection coefficient (EPC), which is defined as the ratio of the value added at domestic prices (i.e. the observed value added) of the production activity, to the estimated value added at reference prices.

Wheat in domestic market at FHP was non-competitive for most of the years however it was less than one for some years, but the value was very marginal to consider as fairly competitive. Estimates of EPC suggest that U.P.'s farmers were not in position to compete even in domestic market. Estimated EPC of wheat under importable hypothesis was higher than one from 1985-86 to 1990-91. Since 1990-91 wheat prices in international market slightly increased, and whole sale prices in Uttar Pradesh too was increasing, but not with same pace. Therefore it became marginally competitive from 1991-92 to 1997-98. Devaluation of Indian currency was also assumed a contributing factor for this change. However competitiveness of wheat in domestic market, was ruined from 1997-98 till 2004-05. Under exportable hypothesis fluctuations were registered from 1990-91 to 1996-97 in value of EPC. Value of EPC was higher than one for most of the years. It implies that U.P.'s wheat was non competitive in international market during the study period.

EPC of rice at FHP was less than one over a long time during study period and rice was fairly competitive in domestic and international market. . From 1985-86 to 1998-99 it was less than unit with high fluctuation. MSP and whole sale prices of rice in 1990's were much lower than international prices therefore rice was reasonably competitive in domestic market in initial years with the exception of two years of some years. Under exportable hypothesis it registered some fluctuating trend in EPC value. Comparing to domestic market it turned non-competitive from 1998-99, i.e. one year earlier than that of importable hypothesis.

At MSP rice was competitive in international market from 1985-86 to 1995-96. But due to stagnant prices in international market and increasing cost and price of rice in Uttar Pradesh, rice turned non-competitive from 1996-97 to 2004-05. Since there is hardly any possibility to decrease in MSP hence there is a thin chance that rice may again become competitive at given international prices. Higher WP leads the non-competitive in international market.

In India, farmers receive subsidies in various forms, and in addition are exempt from any direct income taxes. The fertilizer subsidy is one of the largest, and that is treated in the estimation of the nominal protection coefficient of fertilizers and captured in the effective protection coefficient of the individual commodities. Apart from this, there are three other major subsidies, two on non tradable inputs, canal irrigation water and electricity principally used for pump sets, and subsidized credit. A number of the studies include extensive discussions of the methods used to estimate these subsidies, and there is also a considerable body of empirical research on this subject that built on these original estimates. These subsidies are in the first instance quantified by estimating effective subsidy coefficients (ESCs).

Considering subsidies provided to farmers in international and domestic market, ESC at FHP was quite high. Therefore wheat was non-competitive in domestic market. Subsidies in India are much debated and sensitive issues. Government in India has continuously been reducing subsidy to farm sector under pressure of international development agencies. But incentive indicators considering subsidies, clearly put forward that Indian farmers are not competitive even in terms of subsidies.

ESC of wheat was competitive in some extent; however this lead was very marginal in 1997-98. Later, value of ESC continuously increased, so wheat became non-competitive under importable hypothesis for rest of the years from 1998-99 till 2004-05. ESC of wheat at MSP and WP under exportable hypothesis was too high at a certain extent to assert it non-competitive for entire study period (i.e. 1985-86 to 2004-05). Under exportable hypothesis wheat at FHP and MSP was non-competitive for most of the years. Value of ESC was less than one. ESC of wheat at Whole sale prices reflects that wheat was a highly non competitive commodity for U.P.'s farmers under both importable and exportable hypothesis.

Value of ESC for rice at FHP was less than one for most of the years of study period. Value of ESC of rice at MSP from 1985-86 to 1996-97 suggest that rice

was reasonably competitive in domestic market during these years. After that ESC value escalated due to hike in MSP. Keeping in view the subsidies provided to domestic farmers and their counterpart in international market the ESC of rice at wholesale prices illustrates that rice was non-competitive from 1985-86 to 1987-88. Narrowing differences in international and domestic prices makes it marginally competitive in 1988-89. Since then till 1998-99, it was quite competitive in domestic market. After that whole sale prices in domestic market increased sharply, therefore rice became non-competitive in domestic market. There was high fluctuation in FHP of rice, which affected competitiveness in domestic and international market. Under exportable hypothesis rice was competitive for a long time of study period. It was evidently at advantage due to price hike in international market. Competitiveness of rice at whole sale prices in international market was not good. Under exportable hypothesis competitiveness scenario was quite different. ESC was higher than one for most of the year on different variant of prices.

In fact the competitive advantages have vanished up after 1996-97 once WTO became functional and government aggravated policy directions towards compliance with WTO's Agreement on Agriculture, i.e. reduction of subsidies on inputs, removal of quantitative restrictions, reduction in tariffs etc. Further with the advent of time both of these commodities became non-competitive and the extent of competitive disadvantage increases year by year. Calculation of incentive indicators and loss of competitiveness has been discussed in detail in chapter six.

The results of primary and secondary data suggest that the farmers of today is not only experiencing a slowdown in agricultural productivity and rise in input costs but also facing the volatility of market because of trade liberalization.

At the present moment Uttar Pradesh agriculture is in a phase of transition as a result of the changes in policies at domestic and international front and globalisation of economies and liberalisation of trade. Failure of technology, market and crops and the resultant heavy debt burden on farmers has added

their distress. The cost of cultivation has increased manifold due to rise in prices of diesel, fertilizer, power, seeds, labour and other farm inputs⁸⁰. Technological fatigue, decline in public investment in agriculture infrastructure, education, research and extension services, large gap in actual and potential yields, stagnation in the net cultivated area, marginalization of holdings, high post harvest losses due to inadequate storage, and processing facilities, inadequate access of institutional; credit, especially to small and marginal farmers⁸¹, land degradation and depletion of water resources, increasing cost of production due to sharp decline in domestic subsidies, reduction in tariffs, artificially lower prices in international market due to high subsidies, escalating agricultural imports due to lifting of QRs , wide gap between per worker GSDP in agriculture and non-agriculture activities and rising disparities across the regions in state as well as at national level are some of the major concern of agriculture in state in post reform regime.

Keeping in view these challenges to state agriculture, steps for immediate consideration and appropriate action are seriously needed. We have first listed a set of recommendations that have to do with strategies and demands at domestic level to save the farmers and their livelihood and at national level that India must in its interest pursue at the international level at WTO negotiations. These recommendations relate to two broad areas i.e. those related to minimising/ mitigating the adverse impact as they call for immediate action, and those help in converting challenges into opportunities and maximising the opportunities, especially the newer ones. The recommendations are made in concurrence with India's obligations arising from WTO, particularly from the five major domains, namely, Domestic Support, Market Access, Export Promotion, Sanitary and Phytosanitary Measures, and TRIPS as well as its commitments under the CBD. They are also seen from the point of the obligations of the principal stakeholders, namely, the farmers as individuals or communities, the

□ Singh (2005)

⁸¹ Source: Survey data for the study

Government of Uttar Pradesh including their departments and agencies; the Government of India including their departments and agencies, and the WTO (with a view on the current negotiations).

8.1 Domestic Measures:

The dismal performance of the Indian agriculture in post liberalisation period can largely be attributed to a steep reduction in the public sector investment in agriculture⁸². It is necessary for government at central and state level that it must increase the capital investment for agriculture sector.

Quality standards are an imperative issue in globalised market. Because, in the market there is no premium (in the retail market especially where farmers take their produce for first disposal) for superior quality. The price offered is average. Further, the quality specifications are subjective and arbitrary⁸³. Government and institutional support be extended in making infrastructure to facilitate disposal of quality products.

Being dominated by foodgrain crops and endowed with relatively uncertain rainfall, Uttar Pradesh agriculture is vulnerable to production instabilities. Production loss is also significant due to improper storage, lack of marketing channels, and disease/pest incidence at domestic front and increasing imports due to various reasons at international front. Income loss is also substantial due to price fluctuations and quality deterioration because of the greater involvement in external trade. In this situation a comprehensive insurance facility may protect the farmers from these adversaries.

These suggestions are some very frequent ones, which are cited so many times by so many experts, but unfortunately ignored. Therefore it still needed governments' attention. Some other measures, which are unconventional but can prove very effective at ground level are needed to make farmers self

⁸² Singh (2006)

⁸³ Colour for instance in rubber, moisture in pepper and ginger, oil content in coconut unlike fat content in milk not easily measurable.

dependant and to overcome from present crisis. Like the concept of village seed production may increase the availability of different seed varieties to peasants. The general abandonment of mixed farming is a significant factor in the stagnant productivity and declines of national biodiversity. The mixed farming and extensive nature of organic farming have important benefits for the farmers and agriculture. Organic farming offers biodiversity benefits for the soil and aquatic ecosystems; it insures against the effects of further intensification and GMOs; and it reverses the dangerous trend of falling agricultural genetic diversity. Therefore bio farming is a viable option for farmers.

In a climate of declining governmental support for conventional means of extension and the evidence of lack of success of traditional methods, the need for alternative methods for disseminating technologies is recognised⁸⁴. Therefore the traditional extension system' based on a top-down approach, rarely delivers in an integrated manner the actual requirements of farmers. In this way Farm Field School can play a vital role.

8.2 WTO's - AoA Compliance Measures:

Since the agriculture sector is the backbone of Uttar Pradesh economy in terms of employment and equally important for contribution in GSDP in the long run, Uttar Pradesh farm commodities must have to be competitive both in the domestic market and international market⁸⁵ for achieving sustainable farm trade security and farm based economy. Competitiveness has to be acquired both price-wise and quality-wise. Price-wise competitiveness obviously depends upon the productivity per unit of land and cost effectiveness through the efficient and economic use of resources, material and man power. Qualitative improvement is pervasive from production⁸⁶, harvesting, handling, and

⁸⁴ Moris, (1991), Scarborough et al. (1997), Wambugu,(1999)

⁸⁵ In which other states are competing in commodities such as Wheat, Rice and Sugarcane

⁸⁶ Free from residues of insecticide/fungicide/herbicide/fertiliser which is obligatory in view of SPS Measures of WTO-AoA.

processing, including drying and all other post harvest operations, packaging and marketing, in and out. Apart from awareness creation, and capacity building at producer-processor-trader levels, institutions and infrastructure including communication system, storage, certification and monitoring, port handling, etc and incentive mechanisms for rewarding quality maintenance should be put in place.

Unlike the farm economies of other states in the country, especially that of the neighbouring states of Uttar Pradesh who are competitors in the market for quite a few commodities (Punjab in Wheat and Rice, Maharashtra in Sugarcane), Uttar Pradesh farm economy (covering livestock, apart from crops) is acknowledged as the most vulnerable to WTO and AoA related concerns in the country because a high proportion of population dependent on agriculture. Consequently when other states give greater emphasis on the promotion of newer export products capitalising on the opportunities provided by WTO in exports, Uttar Pradesh has to give far greater attention on defending her gains by warding off the adverse impact and on mitigative or protecting measures.

Market access is another important issue. The strategy in overcoming the challenges of Market Access under AoA (for both competing with imports within the country and exports to other competing countries) proposed in the long run is to make products and commodities of Uttar Pradesh competitive, both in price and quality. Competitiveness in price is achieved by reducing the cost of production which in turn by adopting cost effective production methods (not by improving productivity at any cost but at a cost that is competitive) by improving the efficiency of inputs such as material inputs, labour, management maintaining low inventory and infrastructure including credit.

Cost effectiveness has much to do as productivity enhancement in improving competitiveness. Long-term competitiveness can be brought by relevant and appropriate technologies especially for augmenting input efficiency. The present investment in technology generation has to be substantially improved

while rationalising research and technology programmes with focus as much on cost-effectiveness as on productivity increases.

To revert the adverse impacts, face the challenges posed by the WTO and to improve the competitiveness of farm commodities' it is necessary for India to strongly pursue her interest with other developing countries at WTO's negotiating platform. The basic needs regarding AoA i.e. Domestic Support, Market Access and Export Subsidies are discussed with other related important issues.

8.2.1 Domestic Support Measures:

- ✦ A range of measures on the trade and domestic production-support fronts need to be designed to offer income support to cultivators, especially the small and marginal. Such measures are needed not only as price relief and stabilisation measures, but also as measures designed to support and increase production. These measures may include following:
- ✦ Introduction of a range of policy measures intended to improve production, which may contribute towards a sustainable income generation by farmers. These could include crop insurance, a range of imaginative rural credit services, new forms of providing agricultural extension services, facilities for marketing, storage and processing, and encouraging post-harvest processing, value addition and marketing cooperatives.
- ✦ With respect to trade, there is scope to use variable tariffs to protect cultivators against sharp fluctuation in international prices and import surges⁸⁷.
- ✦ Re-imposing QRs is to be pursued in AoA negotiations within the framework of a Livelihood Security Box. Indeed, there is an argument that direct import control measures, like QR's on agricultural products, is pursuable by the

⁸⁷ Similar measure has also been recommended in respect of food grains by the Abhijit Sen Committee.

developing countries under the existing framework of AoA in relation to food security and rural development.

- ‡ Statutory MSP to be extended to other crops in Uttar Pradesh⁸⁸. There is need for similar WTO compatible measures to safeguard the livelihood of small and marginal farmers of other crops in the periods of non-remunerative market price.
- ‡ Expert multi-disciplinary policy oriented research must be initiated on (a) the various forms of domestic support that are required to provide continuous buoyancy to Uttar Pradesh agriculture and agricultural trade, (b) the compatibility of such measures with WTO stipulations, and (c) crafting negotiating strategies, which will strengthen national capability at periodic WTO negotiations.

8.2.2 Direct Support to Small and Marginal Farmers:

The largest quantum of domestic support extended to the farm sector in this country consists of subsidy on non-product specific inputs, especially fertilisers, farm energy, irrigation water, etc. The commodity specific support is fixation of MSP and governmental procurement at MSP. According to WTO's categorisation both these supports are trade distorting and fall in the Amber box. While support on fertiliser and commodity procurement at MSP is largely borne by the Central Government, the support on farm energy, irrigation water, etc. is borne by the respective state governments. There are some inherent weaknesses in the existing disbursal of domestic support to agriculture in the form of fertiliser subsidy and procurement price. They both accentuate inter-regional disparities among and within the state. Although fertiliser subsidy is not commodity specific, the ability to avail this support is influenced by other factors, such as irrigability, crop choices (for instance major cereals or cash

⁸⁸ As has been recommended for the continuation of the MSP-based system of procurement of food grains by the Food Corporation of India by the High Level Committee on a Long Term Grain Policy for India headed by Prof Abhijit Sen.

crops), etc. Rainfed areas, non-food grain or non-cash crop producing regions in the country as well as in states are restricted from making gain from this kind of support. Procurement price support being commodity specific, this support goes to those areas where these commodities are produced with marketable surplus. Here again, irrigated states like Punjab and Haryana and parts of Uttar Pradesh (Western) make larger gains. Further even in these regions or states procurement price benefits only those who have marketable surplus while those who are subsistent farmers are not benefited although cost of production remains the same for all sections of the farming community (in contrast, input subsidy offers comparatively better equity).

In Uttar Pradesh, fertiliser intake is low, largely due to low fertiliser use efficiency (due to poor water control). Hence Uttar Pradesh inherent limitations in benefiting from the support extended through fertiliser subsidy. As there is hardly any surplus generated by small and marginal farmers therefore they are unable to avail the benefit from MSP on grains as well. In short, crops grown on four-fifths of the arable land in the state are not able to avail any or substantial part of the domestic support extended by the Central Government. While continuance of domestic support for agriculture by the Central Government is imperative, there is need for restructuring the support system to ensure equity among all regions and states in the country; within the regions/states, and different socio-economic groups among the farming communities. Since Uttar Pradesh agriculture (not only that of Uttar Pradesh but of many regions and states which are inherently constrained because of the resource endowments) is inherently incapable of absorbing the present form of domestic support, it needs restructuring to suit to the specific production pattern of state's agriculture (for that matter for similarly resource constrained areas).

8.2.3 Domestic Support: Sustainable Livelihood Box:

It is well known that OECD and other developed countries provide subsidies to the extent of one billion dollars per day to their farmers. The USA has further

increased farm subsidies in its Farm Bill of 2002 and EU extend the same through Common Agricultural Policy (CAP). Obviously, these subsidies are being adjusted against Blue box payments and Green box measures. Their subsidies do not seem to fall within the preview of Amber box measures, which alone are considered to be trade distorting. At present in ongoing negotiations⁸⁹, it may be useful to propose the following two alternatives:

First, all boxes may be abolished and the do's and don'ts with reference to trade distortion and unfair trade practices may be spelt out in clear and unambiguous terms.

Second, as an alternative negotiating principle, a new box relating to Sustainable Livelihoods (Livelihood Security Box⁹⁰) may be introduced, which will empower developing nations facing the challenge of providing livelihoods to the rural population to place restrictions on imports, where there is convincing evidence that such imports will erode job/livelihood opportunities in their countries.

A major part of the population of many developing countries including India depends upon agriculture (crop and animal husbandry, fisheries, forestry and agro-forestry and agro-processing) for their livelihoods. Trade which leads to the destruction of rural jobs / livelihoods will further enhance poverty and hunger and will make the achievement of development goals in the areas of poverty reduction and hunger elimination are impossible. The result will be social disintegration because of a further increase in rich-poor divide. Globally,

⁸⁹ India is at the best position ever before at WTO negotiations, as the present deadlock is an exceptional opportunity for India to bargain against the market access demand of developed countries. It seeks a strong will and firm stand to raise the issues of common interest of developing countries. Otherwise the fractional negotiation with particular countries will divide the developing countries and weak their position.

⁹⁰ The idea of a 'development box' has been suggested by a group of developing countries. Such a scheme would include measures that would provide market access for the crops produced by low income and resource poor farmers with higher levels of domestic support for these farmers in keeping with Article 6.2 of the AoA.

the continuation of the present situation where a few million farm families in industrialised countries, supported by heavy inputs of technology, capital and subsidy, compete with over a billion small farmers, having little access to technology, credit and adequate post-harvest infrastructure, will not help to make free trade an instrument of poverty eradication. Trade should not only be free but also fair to the primary producers in predominantly agricultural developing countries. The percentage of population dependant on agriculture for their livelihoods should be the major criterion for eligibility for using the provisions of the proposed Livelihood Security Box. The minimum could be 50% of the population.

Third, domestic support to farmers is very high in OECD countries only because the subsidies fall in non-actionable areas. We should avoid using the term "subsidy" in relation to the very modest help being extended to millions of the small farm families⁹¹. A range of domestic support measures like those relating to infrastructure development, and many other forms of public provisioning, are non-trade distorting and hence non-actionable. Policy makers in Government of India which deal with farmers' interests in WTO should be sensitised in such issues, so that they do not refer to any and every help given to small farmers as "subsidy".

8.2.4 Market Access Concerns to Uttar Pradesh:

Market access concerns of Uttar Pradesh are not only limited to the international markets but also extended to the domestic Indian markets in respect of competing with agricultural raw materials from other countries under the de minimis import stipulation of the AoA and possible flow of commodities under liberalised trade. In order to overcome the disabilities arising from Market access provisions under AoA, appropriate negotiated changes have to be

⁹¹ Support for sustainable farming', rather than 'subsidy', is the terminology used in developed countries to refer to the very modest help being extended to small producers, who are getting heavily indebted due to the unfavourable cost-risk-return structure of farming.

brought in the implementation of AoA apart from appropriate governmental policies and programmes at national and state levels.

8.2.5 Tariff and Non-Tariff Barriers to Trade:

Both tariff and non-tariff barriers seriously limit access to the markets of industrialised countries. While tariff barriers will be subject to some discipline, non-tariff barriers especially the sanitary and phytosanitary measures for these measures are not only set to high levels by the importing developed countries, but also applied arbitrarily on the commodities from the developing countries. More frequently the high SPS measures set by some of the developed countries are far beyond the rationally admissible health requirements and hence outside the scope of developing countries to meet them. However, SPS measures have become a legally admissible non-trade barrier from the point of India.

8.2.6 Sanitary and Phytosanitary Measures:

All non-tariff barriers coming in the way of access to the markets of industrialised countries should be reviewed, rationalised and removed. At the same time, assistance should be extended to developing countries to improve their capacity in the area of sanitary and phytosanitary measures as well as the adoption of codex alimentarius standards of food safety. Unrealistically high Sanitary and Phytosanitary Measures (SPS) standards are often used to create trade barriers against India's exports⁹². Therefore India and other developing countries must become a part of the process. UP has been the victim of such trade barriers by which SPS standards are decided upon. At the same time we must evolve our own SPS standards in our country for our domestic products as well as imports.

⁹² It happens earlier in Japan with Indian mango exporter.

8.2.7 Support for Export:

One of the major reasons for the unprecedented fluctuations in price of Uttar Pradesh farm commodities is the high fluctuations in supply arising from production uncertainty accumulated over time, which again is accentuated by imports under liberalised trade (a bitter consequence of removal of QRs). In the short run, it is not possible either to change production or change the internal demand substantially. One temporary and quick yielding possible measure should be to make a proper buffer stock and prohibit the export in years of low production and promote the export of these commodities⁹³ by supporting the export efforts through compensating the differential between the internal and external (export) prices⁹⁴ in the years of high produce⁹⁵. Central support for transport assistance announced in the 2002-03 budget and institutionalised in the 2002-07 EXIM Policy should be extended to cover all crops and assistance extended to handling and packaging. It is a common practice in developed countries to support the farming sector for exporting farm commodities.

8.2.8 Tariffication:

In the short run, measures need to be taken to overcome the trade disabilities arising from the removal of QR and obligatory imports (de minimis). The implementation of WTO provisions has necessitated a need for restructuring of Uttar Pradesh agriculture. As nearly 80% of the land is put under foodgrain

⁹³ In the year 2005-06 and 2006-07 there were no supply constraints due to lower production in Uttar Pradesh as there was a good production (higher than previous years) but a many Multinational Food Corporations had been provided the Open General License (OGL) to procure and export wheat from U.P. In the same years India was facing supply crisis (?) and imported wheat from Australia. It is an interesting fact that same years agents for Australian Wheat Board procured wheat from U.P. and exported.

⁹⁴ It is a WTO compatible measure.

⁹⁵ For example farmers in U.P. are facing fears of low sugar prices in current year (2007-08) due to bumper harvest of sugarcane.

crops, adjustment period required is longer and also demands high investment support. In order to readjust and reallocate resources and thereby ensure a level-playing field, Uttar Pradesh farmers need a breather at least minimum 5-10 years along with additional investment support. During this period, the safeguards provided under WTO agreement in terms of imposition of tariff and such other measures should be invoked and made use of. This will give farmers reasonable time to acquire the necessary trade capabilities. Resources can get reallocated to enhance competitiveness.

The negotiations preceding the final Uruguay Round had not considered the wide changes occurring in the tariff rates. Most of agricultural commodities seek special attention. Also affecting Uttar Pradesh economy are the low bound rates and applied tariff rates for foodgrain crops (40% and 25%, respectively). Measures are to be taken at the national as well as WTO levels to develop a Tariffication Code, based on principles of equity and the livelihood security of small farm families.

8.2.9 Re-categorisation of Agricultural Commodities/Crops:

Protection in the short run is provided through tariff on imports. The mechanism of bound rates established by WTO is used in imposing tariffs on imports by the member nations. Special protection is granted against the import of agricultural commodities by imposing tariff rates, which are relatively set at higher levels than on industrial raw materials. So categorisation of farm produces as agricultural produce or industrial produce/raw materials has critical relevance in using this permitted tariffication device to regulate domestic market and protect the domestic producers.

This classification has created anomalous situation after the establishment of WTO. As many agricultural crops had been classified as processed product⁹⁶

⁹⁶ For example, the case of rubber, coir and jute. This has encouraged import of rubber, coir and jute when the differences between domestic price and international price cross certain limits. Such imports have rendered hundreds of thousands of people in the many states, most

and being treated as industrial raw material, the maximum permissible tariff rate⁹⁷ on this is 40 per cent. However, other farm produces classified as agricultural produce, although some of them may serve as industrial raw material as is the case of cotton or sugarcane, the bound tariff rate in India is 100 percent. This classification of commodities done by the Government of India during early GATT days warrants re-classification in the context of agricultural trade coming under WTO.

India is getting another opportunity to correct this anomaly. The Doha Ministerial Conference, which was expected to take up such issues, has postponed this consideration. The negotiations on the agriculture and market access issues are on and India has the opportunity to bargain for interest of farming community. In fact the governments in the States and Centre must initiate steps to get reckoned all unprocessed primary product as agricultural commodities. A very large number of small and marginal farmers are dependent upon these commodities for their livelihood and the present classification is unfavourable to them is an additional ground for this reclassification.

8.2.10 Facing the Challenge of Quality Standards:

There is urgent need for quality improvement both in the interest of domestic consumption and export. At the same time, setting of unrealistic standards in respect of agricultural commodities must be countered by effective participation in standard setting exercises of Codex alimentarius, IPPC, etc. Capacity building of technical personnel by Government of India and ensuring their participation in standard setting exercises in the multilateral bodies require

of them belonging to BPL and depending on employment connected to coir production, lose their only means of livelihood security. These human and economic problems of huge dimension can be solved in the short term, by re-classification of such crops as agricultural products.

⁹⁷ The bound rate

immediate attention. The plant quarantine infrastructure of Government of India must be made more effective and stringent in enforcement along with comprehensive quality standards set for import of each commodity. Government of India should extend generous assistance to upgrade the existing quality grading and certification laboratories in the States to internationally acceptable evaluation standards and to establish new state-of-the-art quality laboratories with competence to provide internationally acceptable quality certification.

8.2.11 Geographical Indication:

An objective system of including items in this list should be developed. Historical antiquity of product names, like "Dasahari Mango", "Raja Amla", "Basmati Rice" etc. should be an important criterion for eligibility to be included in such a list.

8.2.12 Trade-Related Intellectual Property Rights (TRIPS):

The revised TRIPS should be compatible with the equity and ethics provisions of the Convention on Biological Diversity and the FAO Treaty on Plant Genetic Resources for Food and Agriculture. In particular, it should contain provisions for the compulsory licensing of rights in the case of inventions of great importance to food and health security, and for benefit sharing with the primary conservers of genetic resources and holders of traditional knowledge. This will help to avoid fear and accusations of bio piracy and to promote mutually beneficial bio-partnerships.

8.2.13 EXIM Policies to Promote Exports:

With the WTO regime coming into force, especially the removal of the quantitative restrictions on the import of agricultural commodities since April 2001, interventions would have to be within the provisions of the AoA agreed upon and accepted by the Government of India, and thereby whatever little

restraint which the farmers and the State Government could exercise in the past is considerably eroded. The loss of this manoeuvrability is the single important implication of India's entry into WTO and signing AoA to the farm economy of Uttar Pradesh as incentive indicators of wheat and rice on different variant of prices suggest that agricultural commodities are vulnerable to this exposure.

The EXIM policies have greater impact on the price regimes of the industrial raw material commodities. In fact long before the WTO regime came into existence, the market prices of the raw material commodities, for instance sugar, pulses and oil seeds, had been highly influenced by the EXIM policies pursued by the GOI from time to time, which alter the supply-demand balance. Import would depress the price regimes of the raw material commodities and in turn farmers' incomes. Many agricultural commodities i.e. sugar, pulses, oilseeds, and cotton are some examples of such policies. Before the advent of the WTO regime farmers and the State Government could exercise some influence on the price regimes as the EXIM policies are shaped largely on the basis of prevailing national political environment. Traditionally the Government of India used to mediate between farmers and manufacturers on the price regime in times of market stress and the problems arising used to get mitigated, though not to the satisfaction of very contenting stakeholders. India can provide different supports to agriculture sector which may stimulate exports of these commodities. These measures have compliance with WTO's AoA and developing countries are frequently using these instruments. The decisions of the Government of India could be influenced by farmers and manufacturers as well, depending upon the extent of persuasion or pressure both the interest groups could bring in to bear upon the GOI.

8.3 U.P.'s Special Need for Policy Initiatives:

It has been argued in the beginning that among the farm economies of different states in the country, Uttar Pradesh is the most vulnerable, and far more

pervasive, to WTO and AoA related concerns because of the dependence of the high proportion of population dependent on this sector. The state, hence, has to give far greater attention on defending her gains while capitalising on the opportunities provided by WTO. Apart from this basic substratum, the very nature of the implications of provisions of AoA and WTO to the farm economy of the state is different (in some cases, contrasting) from the rest of the states in the country, resulting in divergence (even conflicting) in interest with that of the rest of the country⁹⁸ because of the specific and unique characteristics and features of the state's farm economy. These are as follows:

- ✦ Being predominantly based on foodgrain crops (almost 80% of the net cultivated land), flexibility in the cropping pattern to adjust with market conditions is limited, in fact practically nil in the short and medium term. Adjustment is slow and demands longer term and hence cost reduction rather than productivity increase when commodity prices are falling should be the strategy;
- ✦ High proportion of subsistence farming results in low marketable surplus. This needs correction with substantial investment of longer duration for increasing productivity through seed replacement, Organic and Bio Farming;
- ✦ Over the period, cultivation is extended to agronomically less suitable crops⁹⁹ and less suitable areas partly due to irrational price regimes and partly prompted by state policies¹⁰⁰. This approach needs to be reviewed and rendered producer-friendly;
- ✦ Vast majority of the holdings are small and tiny (90% land holdings are under the small and marginal landholding category), hence of low risk bearing ability and highly vulnerable to income loss due to price decline and

⁹⁸ In the limited sense of adverse impacts on livelihood security of the dependant population.

⁹⁹ State Agriculture Diversification Programme is such an example, for which many farmers in Bundelkhand region gives their lives by committing suiciding.

¹⁰⁰ Which are often for increasing production to further the state's interest rather than the benefit of the farming community.

significant deprivation of livelihood opportunity, more so if such fall arises from imports;

- ✦ High degree of instability in price regime witnessed (in comparison to other crops) on account of the export;
- ✦ Endowed with a national market (of export), which is beset with oligopolistic tendencies, a few buyers exercise control over the market¹⁰¹. Hence ability of the farmers to influence price regime is low (unlike tea, dry fruits and spice's producers), unless there is a strong will on the part of the governments, particularly the Government of India;
- ✦ There are inherent conflicts between the interests of the farmers (seeking always a higher price) and that of the wholesaler who interact with organised market look for ease of access at low prices, and exporters who gain from international trade. Hence the inability to forge a consensus on price regimes;
- ✦ Most of the crops grown in Uttar Pradesh are chosen to suit to its unique natural resource endowments, such as high rainfall, undulating topography and variations in altitude at short spatial distances. While these crops are of considerable significance to the economy of the state, they do not enjoy strategic advantage in the national context (in contrast to commercial crops as cotton or sugarcane).
- ✦ Fluctuations in production or price regime in Uttar Pradesh commodities are not capable of causing serious consequence to the national economy. Hence the adverse impact arising from fluctuations in production and price in these commodities are not capable of capturing national interest in a manner and dimension to receive mitigative measures at critical levels to alleviate the attendant hardships and economic erosion of the farmers¹⁰²;

¹⁰¹ In a sense centralisation of market is not necessarily through the physical command of the stock of commodities.

¹⁰² Contrast with wheat and rice farmers of Punjab and Haryana and rice farmers of Andhra Pradesh.

- ✦ Surpluses in the market get accumulated over a period in the national market, largely due to increasing production from other states, in certain wherein commodities Uttar Pradesh had once enjoyed exclusivity in productions. This has forced up on a new domestic trade paradigm with producers facing the brunt;
- ✦ Increasing input cost (all of these i.e. seed, fertilizers, pesticides, irrigation, credit), render Uttar Pradesh agriculture costly and debilitate its competitiveness, despite favourable climatic conditions especially high rainfall. The entailing built in rigidities in the cost structure makes it difficult to adjust at times of price fall.

Policies related to deregulation and decontrolling of governments interferences and openness to world market are the two major elements of liberalisation and economic reforms. The present distress of farmers is result of a combination of global and domestic factors and failures. Globally, the high subsidies to farm sector in US and other developed countries led to over production and which in turn artificially depressed the world prices. Pressure for more openness and reduction in tariffs on imports due to globalisation and WTO policies, meant that domestic farmers were now forced to compete with artificially reduced world prices. Therefore globalisation had spill over effect in term of causing losses for domestic producers.

The envisage benefits of the agriculture sector namely higher growth and significant increases in agricultural export that were supposed to accrue as a consequence of reforms in trade policy and real devaluation can materialized only when agriculture production in general and production of exportable commodities in specific is highly responsive to increased prices. Hence in the absence of accelerated investment in rural infrastructure, price incentives have failed to produce the desired result. On the other hand, increased reliance on the market and border prices and reduction in the role of the public sector and erosion of planning combined with a policy of fiscal compression has resulted in

a significant reduction in public investment in rural infrastructure thereby adversely affecting agriculture growth and the emergence of export surplus.

At the domestic front the state failed to intervene at multiple levels to control this. These global factors were compounded by failure on the domestic front that included decline in yield due to negligence of the state. Government's extension departments to provide timely counselling on farm technologies, failure of the state to provide access to institutional credit, failure of the state to invest in access to water, lack of knowledge of farmers regarding the optimum use of inputs. Instead we have chosen to wait for committees to be appointed and provide policy suggestions.

In the present neo liberal policy regime, the biggest challenge before the farm sector is, how to sustain the livelihood of over 80 percent resource poor marginal and small farmers and how to generate productive jobs for farm workers. The on going agricultural reform process is highly loaded against farmers, especially small and marginal landholders. These changes could help to intensify marginalisation of already marginalised farmers. Capital intensive farming suggested as a model for eliminating scale disadvantage of small farming, does not appear to be a viable option, rather it is an exploitive system.

To overcome the distress in agriculture and make agriculture a profitable venture, the policy focus at domestic front must be on; raising public investment in infrastructure, including irrigation, power, roads, markets, and research and extension; broadening the base of agricultural growth to reduce poverty and inequality, conserving and developing degraded land.

On the other hand at the international front the unfair political economy of "you liberalise-we subsidise" is practised by developed countries, while developing countries are forced to liberalise their domestic trade under pressure from bilateral agreements and donor conditions, the AoA effectively locks in such liberalisation and legalises the continued subsidisation of developed countries agribusiness. Agricultural negotiations in Doha Round are at a critical phase. Time and again, developed countries have consistently failed to put

development at the centre of the talk. The framework agreement from July 2004 and the new proposals by the US and EU only offer vague languages with respect to some of the major concerns of the developing countries. It is clear that the dislodged small and marginal players can find productive livelihood opportunities only through a massive intervention by the state and public agencies in market processes at domestic and international front. However, the disorganised and scattered small players have no experience of getting any worthwhile space that is theoretically available. The situation demands creative and bold measures. All it requires is strong political will for complete restructuring at domestic front and at the international front the AoA must have to deliver real benefits to poor people, small and marginal farmer's communities of developing countries. This objective will be the only benchmark for any progress in the negotiations.



Annexure

Annexure-1: Different Variants of Domestic Prices of Wheat and Rice

YEAR	Wheat			Rice		
	Farm Harvest Prices ¹	Minimum Support Prices	Wholesale Prices	Farm ² Harvest Prices	Minimum Support Prices	Wholesale Prices
1985-86	167.00	162.00	187.00	168.00	189.33	251.00
1986-87	167.00	166.00	200.00	193.33	194.67	287.00
1987-88	191.00	173.00	229.00	232.00	200.00	358.00
1988-89	212.00	183.00	230.00	238.67	213.33	357.00
1989-90	206.00	215.00	231.00	240.00	213.33	374.00
1990-91	262.00	225.00	285.00	256.00	246.67	449.00
1991-92	329.00	250.00	327.00	348.00	273.33	541.00
1992-93	319.00	330.00	354.00	350.67	306.67	593.00
1993-94	369.00	350.00	397.00	424.00	360.00	613.00
1994-95	376.00	360.00	401.00	445.33	413.33	653.00
1995-96	408.00	380.00	487.00	473.33	480.00	747.00
1996-97	535.00	475.00	528.00	520.00	506.67	592.00
1997-98	484.00	510.00	529.00	502.67	553.33	759.00
1998-99	544.00	550.00	646.00	573.33	586.67	836.00
1999-2000	525.00	580.00	708.00	608.00	653.33	
2000-2001	529.00	610.00	615.00	536.00	680.00	
2001-02	529.00	620.00	628.00	536.00	706.67	
2002-03	529.00	620.00	635.00	536.00	706.67	832.00
2003-04	N.A.	630.00	660.00	N.A.	733.33	844.00
2004-05	N.A.	640.00	683.00	N.A.		789.00

¹ FHP prices of wheat the year 2000-01 have been taken for consecutive two years of 2001-02 and 2002-03 for calculations of incentive indicators.

² FHP prices of Rice the year 2000-01 have been taken for consecutive two years of 2001-02 and 2002-03 for calculations of incentive indicators.

Annexure-2: International (FOB) Prices of Wheat and Rice and Exchange Rates

YEAR	THAI-Rice ³	US-Wheat ⁴	Exchange Rates of US-\$
1985-86	217	128	12.24
1986-87	210	110	12.78
1987-88	212	124	12.97
1988-89	260	167	14.50
1989-90	292	162	16.70
1990-91	296	118	17.95
1991-92	287	150	30.70
1992-93	244	142	31.36
1993-94	294	144	31.40
1994-95	290	156	33.45
1995-96	362	216	35.5
1996-97	338	181	37.16
1997-98	302	143	42.07
1998-99	305	120	43.33
1999-2000	290	112	45.68
2000-2001	292	130	47.68
2001-02	296	133	N.A.
2002-03	299	149	N.A.
2003-04	303	153	N.A.
2004-05	N.A.	N.A.	N.A.

³ Prices of 5% Broken Exported Fair and Quality Thai Rice

⁴ Prices of HRW-2 Variety

Annexure-3: Model Composition of Traffic for Foodgrains by Distance Slabs⁵

Distance (Kms.)	Rail	Road
000-100	13.79	86.21
101-150	19.83	80.17
151-200	24.58	75.42
201-250	31.41	68.59
251-300	32.07	67.93
301-350	32.08	67.92
351-400	38.95	61.05
401-500	36.03	63.97
501-750	44.90	55.10
751-1000	59.41	40.59
1001-1500	72.82	27.18
1501-2000	88.54	11.46
>2001	97.42	2.58

⁵ Source: Sharma Pradeep K. (1991)

Annexure -4 Schedule for Survey

उत्तर प्रदेश में किसानों की वर्तमान आर्थिक दशा एवं

पिछले दस वर्षों में हुए

परिवर्तन के अध्ययन के लिये प्रश्नावली



योगेश बन्धु आर्य

(अनुसंधानकर्ता)

भारतीय सामाजिक विज्ञान अनुसंधान परिषद

गिरि विकास अध्ययन संस्थान, लखनऊ

उत्तर प्रदेश में किसानों की वर्तमान आर्थिक दशा एवं पिछले दस वर्षों में हुए परिवर्तन के अध्ययन के लिये प्रश्नावली

1.0 सामान्य विवरण:

1.1 जिला:

1.2 तहसील:

1.3 गांव:

2.0 किसान एवं उसके परिवार का विवरण:

2.1 किसान परिवार के मुखिया का नाम:

2.2 उम्र:

2.3 परिवार के सदस्यों की संख्या:

अ. पुरुष:- वयस्क:

अवयस्क:

ब. महिला:- वयस्क:

अवयस्क:

2.4 कृषि में कार्यरत व्यक्तियों की संख्या:

2.5. खेती का स्वरूप:

अ. पारिवारिक:

ब. व्यावसायिक:

2.6 किसान की जोत का कुल विवरण:

सारणी 1: जोत का विवरण

जोत का विवरण	जोत की संख्या	जोत का कुल आकार (क्षेत्रफल)
व्यक्तिगत जोत		
किराये पर लिया गया		
किराये पर दिया गया		
कुल आकार		

3.0 अपनी जोत को वर्ष में कितने बार बोते हैं ।

अ. एक फसल

ब. दो फसल

स. बहु फसल

3.1 फसल एवं फसल चक्र का विवरण वर्ष:

सारणी 2: व्यक्तिगत जोत पर फसल एवं फसल चक्र का विवरण

क्रम संख्या:	फसल	क्षेत्रफल	कुल आय
1	धान		
2	गेहूँ		
3	मोटे अनाज		
4	दालें		
5	तिलहन		
6	गन्ना		
7	आलू		
8	सब्जियां		
9	अन्य		

सारणी 3: किराये की जोत पर फसल एवं फसल चक्र का विवरण

क्रम संख्या	फसल	क्षेत्रफल	कुल आय
1	धान		
2	गेहूँ		
3	मोटे अनाज		
4	दालें		
5	तिलहन		
6	गन्ना		
7	आलू		
8	सब्जियां		
9	अन्य		

4.0 कृषि आदानों का विवरण:

सारणी 4: कृषि आदान का विवरण

कृषि आदान	विवरण			संख्या/मात्रा प्रति इकाई	व्यय	अन्य लागत
मजदूर	पारिवारिक	वयस्क				
		अवयस्क				
	किराये पर लगाये गये	वयस्क				
		अवयस्क				
ऋण	स्वयं					
	व्यक्तिगत					
	संस्थागत					
	अन्य					
सिंचाई	नहर					
	सरकार ट्यूबवेल					
	किराये पर उपलब्ध					
	व्यक्तिगत ट्यूबवेल					
	पम्पिंग सेट-किराये पर उपलब्ध					
	व्यक्तिगत पम्पिंग सेट					
बीज	स्वयं द्वारा रक्षित					
	बाजार से क्रय प्रमाणित बीज					
	सरकारी केन्द्र द्वारा प्रमाणित बीज					
उर्वरक/कीटनाशक एवं अन्य दवाये	नाइट्रोजन					
	फासफोरस					
	पोटाश					
	कीटनाशक					
	अन्य					
मशीन	ट्रैक्टर	स्वयं	किराये पर			
	थ्रेसर	स्वयं	किराये पर			
	सिडलर	स्वयं	किराये पर			
	अन्य	स्वयं	किराये पर			
अन्य						

5. आय के स्रोत

4.1 प्रमुख कृषि स्रोत से आय :

4.2 मजदूरी से आय :

4.3 अन्य स्रोत से आय :

4.4 कुल आय

6. क्या फसल चक्र में पिछले दस वर्षों में कोई परिवर्तन किया है।

हैं ☐

नहीं

☐

6.1 वर्तमान फसल का चक्र का विवरण कितने वर्षों से अपनाया है।

पांच वर्ष ☐

दस वर्ष ☐

अधिक

☐

6.2 यदि हैं तो फसल चक्र में परिवर्तन का कारण क्या रहा है।

अ. कम आय

ब. कम उत्पादन

स. अधिक लागत

द. बाजार का अभाव

य. अन्य

7. अपने उत्पाद को बाजार में कब बेचते हैं।

अ. कटाई के तुरन्त बाद चार छः से आठ हफ्तों के अन्दर

ब. कटाई के चार तीन महीने के भीतर अन्दर

स. बाजार में अच्छी कीमत मिलने पर

द. पूर्व निर्धारित शर्तों पर

ज. अन्य

7.1. फसल जल्दी बेचने का मुख्य उद्देश्य क्या होता है।

अ. ऋण चुकाना

ब. स्वयं उपभोग के लिए अन्य वस्तुएं खरीदना

स. पूर्व निर्धारित शर्तों के कारण

द. भंडारण की व्यवस्था न होने के कारण

ज. लाभ कमाना

7.2 अपनी फसल कहीं बेचते हैं।

अ. स्थानीय हाट में

☐

ब. तहसील बाजार में

☐

स. शहर की अनाज मण्डी में

☐

द. निजी अथवा स्थानीय व्यापारी को

☐

ज. पूर्व निर्धारित शक्तों पर महाजन को महाजन को

☐

च. अन्य

☐

8. खेती करने का प्रमुख उद्देश्य क्या रहा है।

अ. स्वयं उपभोग के लिये उत्पादन करना

☐

ब. उत्पादन की बिक्री से स्वयं उपभोग के लिये अन्य वस्तुये क्रय करना

☐

स. बिक्री से लाभ कमाना ।

☐

द. अन्य

☐

9. ऋण का उद्देश्य :

अ. कृषि कार्य हेतु

☐

ब. उपभोग हेतु

☐

स. अन्य

☐

10. उपभोग के लिए अनाज की उपलब्धता:

सारणी 5: उपभोग के लिए अनाज की उपलब्धता का विवरण

उपलब्धता	मात्रा	प्रतिशत
स्वयं के उत्पादन के द्वारा		
बाजार के द्वारा		
अन्य		

11. कृषि से संबंधित अन्य सुविधाओं का विवरण:

11.1 गोदाम की उपलब्धता:

हां

☐

नहीं

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11.2 यदि हां तो प्रकार:

सरकारी

☐

निजी

☐

अन्य

☐

11.3 उत्पाद को बाजार तक ले जाने के लिए साधन की उपलब्धता:

हां

☐

नहीं

☐

11.4 यदि हां तो किस प्रकार का साधन है:

किराये का

☐

निजी

☐

11.4 सरकारी खरीद की सुविधा:

हां

☐

नहीं

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11.5 मानक बाट एवं माप :

हां

☐

नहीं

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12. अन्य विवरण:

१०२

Annexure – 5 : Agreement on Agriculture: Articles and Annexes

(Articles)

Article -1: Definition of Terms

Article -2: Product Coverage

Article -3: Incorporation of Concessions and Commitments

Article -4: Market Access

Article -5: Special Safeguard Provisions

Article -6: Domestic Support Commitments

Article -7: General Disciplines on Domestic Support

Article -8: Export Competition Commitments

Article -9: Export Subsidy Commitments

Article -10: Prevention of Circumvention of Export Subsidy Commitments

Article -11: Incorporated Products

Article -12: Disciplines on Export Prohibitions and Restrictions

Article -13: Due Restraint

Article -14: Sanitary and Phytosanitary Measures

Article -15: Special and Differential Treatment

Article -16: Least-Developed and Net Food-Importing Developing Countries

Article -17: Committee on Agriculture

Article -18: Review of the Implementation of Commitments

Article -19: Consultation and Dispute Settlement

Article -20: Continuation of the Reform Process

Article -21: Final Provisions

(Annexes)

Annex-1: Product Coverage

Annex -2: Domestic Support: The Basis for Exemption from the Reduction
Commitments

Annex -3: Domestic Support: Calculation of Aggregate Measurement of
Support

Annex -4: Domestic Support: Calculation of Equivalent Measurement of
Support

Annex -5: Special Treatment With Respect to Paragraph 2 of Article 4

Annexure – 6: Final Bound and Applied Tariff Rates

Annexure – 6 (A): New Bound Rates of Tariffs for Selected Agricultural Products

Section No.	Name of product	Old bound rate	New bound rate
1	Skimmed milk powder - in powder granular form of fat content not exceeding 1.5 percent	0	60
2	Skimmed milk powder - not containing added sugar or other sweetening material	0	60
3	Peas	100	50
4	Oranges	100	40
5	Lemons	100	40
6	Grapefruit	100	25
7	Fresh grapes	100	40
8	Apples	40	50
9	Pear and quinces	40	35
10	Prunes	40	25
11	Spelt wheat	0	80
12	Maize (seed)	0	70
13	Maize (other)	0	60
14	Rice in husk (paddy or rough)	0	80
15	Rice - husked	0	80
16	Rice - semi- or wholly milled	0	70
17	Rice - broken	0	80
18	Sorghum	0	80
19	Millet	0	70
20	Malt - not roasted	100	40
21	Olive oil, other than virgin	45	40
22	Rape, colza or mustard oil, crude	45	75
23	Rape, colza or mustard oil, other	45	75
24	Chewing gum - whether or not sugar coated	150	45
25	Preparations for infant use	17.5	50
26	Sweet biscuits, waffles and wafers	150	45
27	Other potato preparations - frozen	55	35
28	Orange juice - frozen	85	35
29	Orange juice - other	85	35
30	Industrial fatty alcohol	150	50

Annexure – 6 (B): Distribution of final bound tariffs on agricultural products

Range of tariffs	With old bound rates		With new bound rates	
	Distribution of tariff lines	Simple average tariff	Distribution of tariff lines	Simple average tariff
(%)	(%)	(%)	(%)	(%)
0 25	5.4	13.2	3.8	18.8
> 25 50	4.5	39.5	6.4	40
> 50 75	3.8	56	4.3	59.2
> 75 100	50.6	99.5	49.3	99.3
> 100 150	32	150	32.5	150
> 150 300	3.8	300	3.8	300
All	690	114.3	690	114.8
	(100)		(100)	

Source: Developed from World Trade Organization and Government of India, Customs Tariff of India.

Annexure – 6 (C): DISTRIBUTION OF ACTUAL APPLIED RATES OF TARIFFS ON AGRICULTURAL PRODUCTS (BASIC CUSTOMS DUTY AS ON MARCH 2002)

Range of actual tariffs	Distribution of tariff lines	Simple average tariff
(%)	(%)	(%)
0 25	15.5	11
> 25 50	73.8	30.5
> 50 75	3.6	71.6
> 75 100	5.8	95.1
> 100 150	0	0
> 150	1.3	179.6
All	690	34.7
	-100	

Source: Government of India, *Customs Tariff of India*. New Delhi.

Annexure -7 : Distribution of Workers in Surveyed Sub Districts

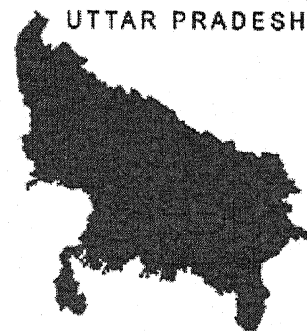
District	Total workers (Numbers)				Cultivators (%)			Labourers (%)			Labour in Household industries (%)			Other workers		
	Area	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females
Vranasi (Pindara)	Rural	262,127	175,027	87,100	39.6	37.6	43.6	19.9	12.5	34.7	13.1	13.8	11.6	27.4	36.1	10.1
	Urban	3,196	2,382	814	15.6	16.3	13.3	8.1	5.3	16.5	30.9	32.5	26.5	45.4	45.9	43.7
	Total	265,323	177,409	87,914	39.3	37.3	43.3	19.7	12.4	34.5	13.3	14.1	11.8	27.6	36.2	10.4
Bareilly (Faridpur)	Rural	12,114	8,040	4,074	18.0	14.4	25.2	49.0	63.0	21.4	12.0	5.0	25.7	21.0	17.6	27.6
	Urban	2,232	1,671	561	1.7	2.3	0.2	23.7	29.1	7.5	24.7	13.3	58.6	49.9	55.4	33.7
	Total	14,346	9,711	4,635	15.5	12.3	22.2	45.1	57.1	19.7	13.9	6.4	29.7	25.5	24.1	28.3
Gaziabad (Garh Mukteswar)	Rural	100,139	75,049	25,090	40.8	44.1	30.9	17.2	16.3	20.0	5.4	3.8	10.2	36.5	35.7	38.9
	Urban	9,994	8,133	1,861	6.4	7.1	3.7	13.5	13.2	14.8	14.5	10.9	30.1	65.5	68.8	51.4
	Total	110,133	83,182	26,951	37.7	40.5	29.1	16.9	16.0	19.6	6.2	4.5	11.5	39.2	39.0	39.8
Basti (Bhanpur)	Rural	38,436	11,141	27,295	50.0	33.9	56.6	40.5	48.5	37.2	2.6	3.7	2.2	6.9	13.8	4.0
	Urban	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	38,436	11,141	27,295	50.0	33.9	56.6	40.5	48.5	37.2	2.6	3.7	2.2	6.9	13.8	4.0

Source: Census of India 2001

Annexure - 8: Area Profile

State: Uttar Pradesh

UTTAR PRADESH



Number of Households				25,757,640			
Household size				6.0			
Proportion of Urban population (%)				20.8			
	P	M	F				
Population - Total	166,197,921	87,565,369	78,632,552	Sex Ratio (females per 1000 males)			
Population - Rural	131,658,339	69,157,470	62,500,869	898			
Population - Urban	34,539,582	18,407,899	16,131,683	Sex Ratio (0-6 Years)			
Population (0-6)	31,624,628	16,509,033	15,115,595	916			
SC Population	35,148,377	18,502,838	16,645,539	Sex Ratio (SC)			
ST Population	107,963	55,834	52,129	900			
				Sex Ratio (ST)			
				934			
				P	M	F	
				Proportion of SC population (%)	21.1	21.1	21.2
				Proportion of ST population (%)	0.1	0.1	0.1
Number of literates	75,719,284	48,901,413	26,817,871	Literacy Rate (%)			
Number of illiterates	90,478,637	38,663,956	51,814,681	56.3			
				68.8			
				42.2			
				Illiteracy Rate (%)			
				67.2			
				54.4			
				81.6			
Total workers	53,983,824	40,981,558	13,002,266	Work Participation Rate (%)			
Main workers	39,337,649	34,338,260	4,999,389	32.5			
Marginal workers	14,646,175	6,643,298	8,002,877	46.8			
Non workers	112,214,097	46,583,811	65,630,286	16.5			
				Proportion of Main Workers (%)			
				23.7			
				39.2			
				6.4			
				Proportion of Marginal Workers (%)			
				8.8			
				7.5			
				10.2			
				Proportion of Non Workers (%)			
				67.5			
				53.2			
				83.5			
Cultivators	22,167,562	17,479,887	4,687,675	Proportion of cultivators to total workers (%)			
Agricultural labourers	13,400,911	8,245,599	5,155,312	41.1			
Workers in household industries	3,031,164	1,946,545	1,084,619	42.7			
Other workers	15,384,187	13,309,527	2,074,660	36.1			
				Proportion of agricultural labourers to total workers (%)			
				24.8			
				20.1			
				39.6			
				Proportion of workers in			
				5.6			
				4.7			
				8.3			
				Percentage of Other workersto total workers (%)			
				28.5			
				32.5			
				16.0			

Annexure 8.1 : Area Profile

District : Bareilly

State : Uttar Pradesh

UTTAR PRADESH

Bareilly

(Source : Census of India 2001)

Number of Households				554,761	Household size				6.0
					Proportion of Urban population (%)				32.9
	P	M	F		Sex Ratio (females per 1000 males)				871
Population - Total	3,618,589	1,934,119	1,684,470		Sex Ratio (0-6 Years)				906
Population - Rural	2,427,139	1,303,590	1,123,549		Sex Ratio (SC)				860
Population - Urban	1,191,450	630,529	560,921		Sex Ratio (ST)				829
Population (0-6)	719,217	377,360	341,857						
SC Population	457,771	246,091	211,680			P	M	F	
ST Population	375	205	170		Proportion of SC population (%)	12.7	12.7	12.6	
					Proportion of ST population (%)	0.0	0.0	0.0	
Number of literates	1,387,124	914,216	472,908		Literacy Rate (%)	47.8	58.7	35.2	
Number of illiterates	2,231,465	1,019,903	1,211,562		Illiteracy Rate (%)	77.0	65.5	90.2	
Total workers	1,095,081	940,387	154,694		Work Participation Rate (%)	30.3	48.6	9.2	
Main workers	862,821	809,862	52,959		Proportion of Main Workers (%)	23.8	41.9	3.1	
Marginal workers	232,260	130,525	101,735		Proportion of Marginal Workers (%)	6.4	6.7	6.0	
Non workers	2,523,508	993,732	1,529,776		Proportion of Non Workers (%)	69.7	51.4	90.8	
Cultivators	437,315	384,494	52,821		Proportion of cultivators to total workers (%)	39.9	40.9	34.1	
Agricultural labourers	205,887	175,725	30,162		Proportion of agricultural labourers to total workers (%)	18.8	18.7	19.5	
Workers in household industries	52,046	31,553	20,493		Proportion of workers in	4.8	3.4	13.2	
Other workers	399,833	348,615	51,218		Percentage of Other workersto total workers (%)	36.5	37.1	33.1	

Prepared and issued by : Data Dissemination Wing, Office of the Registrar General, India 2A, Mansingh Road, New Delhi - 110 011, India

Website : <http://www.censusindia.net> E-mail : rgoffice@censusindia.net

Software designed and developed by : C-Three-I Systems Pvt. Ltd., New Delhi - India. E-mail: c3isystems@vsnl.com

Annexure 8.2: Area Profile

UTTAR PRADESH

District : **Varanasi**

State : **Uttar Pradesh**

Varanasi

(Source : Census of India 2001)

Number of Households				430,651	Household size				7.0
					Proportion of Urban population (%)				40.2
	P	M	F		Sex Ratio (females per 1000 males)				903
Population - Total	3,138,671	1,649,187	1,489,484		Sex Ratio (0-6 Years)				919
Population - Rural	1,878,100	976,055	902,045		Sex Ratio (SC)				904
Population - Urban	1,260,571	673,132	587,439		Sex Ratio (ST)				822
Population (0-6)	575,882	300,040	275,842						
SC Population	435,545	228,734	206,811			P	M	F	
ST Population	769	422	347		Proportion of SC population (%)	13.9	13.9	13.9	
					Proportion of ST population (%)	0.0	0.0	0.0	
Number of literates	1,694,405	1,050,613	643,792		Literacy Rate (%)	66.1	77.9	53.0	
Number of illiterates	1,444,266	598,574	845,692		Illiteracy Rate (%)	56.4	44.4	69.7	
Total workers	982,054	736,778	245,276		Work Participation Rate (%)	31.3	44.7	16.5	
Main workers	770,799	651,758	119,041		Proportion of Main Workers (%)	24.6	39.5	8.0	
Marginal workers	211,255	85,020	126,235		Proportion of Marginal Workers (%)	6.7	5.2	8.5	
Non workers	2,156,617	912,409	1,244,208		Proportion of Non Workers (%)	68.7	55.3	83.5	
Cultivators	207,666	133,290	74,376		Proportion of cultivators to total workers (%)	21.1	18.1	30.3	
Agricultural labourers	102,573	42,649	59,924		Proportion of agricultural labourers to total workers (%)	10.4	5.8	24.4	
Workers in household industries	221,965	164,554	57,411		Proportion of workers in	22.6	22.3	23.4	
Other workers	449,850	396,285	53,565		Percentage of Other workersto total workers (%)	45.8	53.8	21.8	

Prepared and issued by : Data Dissemination Wing, Office of the Registrar General, India 2A, Mansingh Road, New Delhi - 110 011, India

Website : <http://www.censusindia.net> E-mail : rgoffice@censusindia.net

Software designed and developed by : C-Three-I Systems Pvt. Ltd., New Delhi - India. E-mail: c3isystems@vsnl.com

Annexure 8.3: Area Profile

UTTAR PRADESH

District : Basti
State : Uttar Pradesh



(Source : Census of India 2001)

Number of Households	315,309
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Household size	7.0
Proportion of Urban population (%)	5.6

	P	M	F
Population - Total	2,084,814	1,075,765	1,009,049
Population - Rural	1,968,829	1,014,325	954,504
Population - Urban	115,985	61,440	54,545
Population (0-6)	406,881	209,904	196,977
SC Population	435,082	224,685	210,397
ST Population	235	122	113

Sex Ratio (females per 1000 males)	938
Sex Ratio (0-6 Years)	938
Sex Ratio (SC)	936
Sex Ratio (ST)	926

Number of literates	880,827	580,987	299,840
Number of illiterates	1,203,987	494,778	709,209

	P	M	F
Proportion of SC population (%)	20.9	20.9	20.9
Proportion of ST population (%)	0.0	0.0	0.0

Literacy Rate (%)	52.5	67.1	36.9
Illiteracy Rate (%)	71.8	57.1	87.3

Total workers	735,176	503,094	232,082
Main workers	483,455	402,949	80,506
Marginal workers	251,721	100,145	151,576
Non workers	1,349,638	572,671	776,967

Work Participation Rate (%)	35.3	46.8	23.0
Proportion of Main Workers (%)	23.2	37.5	8.0
Proportion of Marginal Workers (%)	12.1	9.3	15.0
Proportion of Non Workers (%)	64.7	53.2	77.0

Cultivators	391,462	280,826	110,636
Agricultural labourers	202,468	108,684	93,784
Workers in household industries	26,640	17,472	9,168
Other workers	114,606	96,112	18,494

Proportion of cultivators to total workers (%)	53.2	55.8	47.7
Proportion of agricultural labourers to total workers (%)	27.5	21.6	40.4
Proportion of workers in	3.6	3.5	4.0
Percentage of Other workersto total workers (%)	15.6	19.1	8.0

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Software designed and developed by : C-Three-I Systems Pvt. Ltd., New Delhi - India. E-mail: c3isystems@vsnl.com

Annexure 8.4: Area Profile

UTTAR PRADESH

Ghaziabad

District : Ghaziabad

State : Uttar Pradesh

Number of Households

538,009

Household size

6.0

Proportion of Urban population (%)

55.2

	P	M	F
Population - Total	3,290,586	1,769,042	1,521,544
Population - Rural	1,474,171	793,186	680,985
Population - Urban	1,816,415	975,856	840,559
Population (0-6)	566,447	305,514	260,933
SC Population	593,780	319,934	273,846
ST Population	207	112	95

Sex Ratio (females per 1000 males)

860

Sex Ratio (0-6 Years)

854

Sex Ratio (SC)

856

Sex Ratio (ST)

848

Number of literates	1,899,735	1,168,462	731,273
Number of illiterates	1,390,851	600,580	790,271

Literacy Rate (%)

69.7

79.8

58.0

Illiteracy Rate (%)

51.1

41.0

62.7

Total workers	938,251	807,147	131,104
Main workers	799,884	723,635	76,249
Marginal workers	138,367	83,512	54,855
Non workers	2,352,335	961,895	1,390,440

Work Participation Rate (%)

28.5

45.6

8.6

Proportion of Main Workers (%)

24.3

40.9

5.0

Proportion of Marginal Workers (%)

4.2

4.7

3.6

Proportion of Non Workers (%)

71.5

54.4

91.4

Cultivators	160,566	135,116	25,450
Agricultural labourers	69,775	52,131	17,644
Workers in household industries	43,934	30,249	13,685
Other workers	663,976	589,651	74,325

Proportion of cultivators to total workers (%)

17.1

16.7

19.4

Proportion of agricultural labourers to total workers (%)

7.4

6.5

13.5

Proportion of workers in

4.7

3.7

10.4

Percentage of Other workersto total workers (%)

70.8

73.1

56.7

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